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JPRS Report

Nuclear Developments

Nuclear Developments

JPRS-TND-88-021

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SOUTH AFRICA

First National Nuclear Facility Closes

51000001a Johannesburg *THE CITIZEN* in English
18 Nov 88 p 12

[Text] South Africa's first pioneering national nuclear facility, the Pretoria cyclotron, has hummed quietly to a stop and been put out to graze—switched off by the man who planned and first started using it 32 years ago.

The coup de grace was lovingly administered at a function at Scientia, headquarters of the Council for Scientific and Industrial Research in Pretoria, by Dr Stefaan du Toit, one-time head of the organisation's former nuclear physics division.

Dr Du Toit came specially to Pretoria to perform the ceremony, from retirement at Plettenberg Bay.

The cyclotron, buried deep in the basement of Scientia, was deactivated with the shutdown ceremony bringing to an end a significant and fruitful era, according to scientists, of three decades in which scientists made exciting progress in nuclear physics in South Africa.

The skeleton of the machine will remain buried deep below scientists as they go about their work in the building.

Most of the other equipment will be transferred to the new Cyclotron facility at Faure in the Cape.

According to the President of the CSIR, Dr Chris Garbers, the Pretoria cyclotron paved the way for new and more sophisticated generations of such units. The last experiments on it were done on Tuesday.

Among many major achievements with the old facility was the creation of South Africa as one of the world's leading producers of long-life cyclotron isotopes.

In its 32 years of work—sometimes working round the clock for six days at a time without break—the cyclotron was the basis of more than 400 scientific publications and produced more than 10,000 consignments of radio-isotopes for medical and industrial use.

Plutonium-Carrying Ships May Take Cape Route

51000001b Johannesburg *FINANCIAL MAIL*
in English 25 Nov 88 p 74

[Text] SA's membership of the international nuclear club may soon take a new turn.

Japan has concluded an agreement to buy shipments of plutonium from Britain and France, and the specially constructed vessel which will ferry the cargo is likely to take the Cape route.

Shipping industry officials say special arrangements may be necessary to replace the vessel's food and fuel stocks in Cape Town, presenting SA with potential security risks. Diplomatic difficulties may also arise if, as seems possible, the vessel is accompanied by a naval escort.

A Japanese shipyard is building a special tanker for the plutonium. Shipping officials say that because the Suez and Panama canals are unlikely to allow nuclear cargoes through their waterways, the Cape route is the best alternative.

Because plutonium is a government-controlled cargo, the officials add that diplomatic discussions may arise if, for reasons of storm or damage, the vessel has to call in at an SA port—particularly if it is accompanied by a naval escort.

In designing the vessel, which is due for completion late next year, the Japanese have promised strict precautions against radiation or contamination. An escort may be needed to counter other dangers—notably the presence of pirates, mostly in West African and Far East waters.

The anti-nuclear lobby asserts that since it requires only a little plutonium to make an atomic bomb, the availability in a single cargo of enough for a magazine of bombs creates concern. Risks inherent in fire, collision or running aground are formidable, but terrorist attacks are still regarded as the greatest danger.

Agreement Signed With USSR on Enriched Uranium

51200005 Ottawa *THE OTTAWA CITIZEN* in English
15 Oct 88 p A18

[Article: "Canada, U.S.S.R. Sign Uranium Pact"]

[Text] Canadian uranium enriched in the Soviet Union will not be used for explosive nuclear devices or military purposes, says a Canada-U.S.S.R. agreement signed Friday in Moscow. Canada's ambassador to the Soviet Union, Vernon Turner, signed the deal for Canada, External Affairs Minister Joe Clark announced. The Soviets have been enriching Canadian uranium for several years, on the condition that the enriched product is re-transferred to one of Canada's nuclear partners. The agreement formalizes this existing practice. Most of Canada's nuclear partners operate power reactors which require enriched uranium for fuel. Because Canada's CANDU reactors don't need enriched uranium, there are no enrichment facilities in Canada. Canada's uranium customers arrange to have their shipments enriched at facilities in the United States, western Europe, and on occasion, the Soviet Union, Clark said.

Food Irradiator Sale to Ivory Coast Provokes Controversy

51200004 Toronto *THE GLOBE AND MAIL*
in English 4 Oct 88 p B3

[Article by Geoffrey York: "Ivory Coast Buys Food Irradiator From Division of Atomic Energy"]

[Excerpts] Winnipeg—For the first time a Third World country is buying Canadian technology to irradiate huge quantities of one of its most important food staples.

A division of Atomic Energy of Canada Ltd. has sold a multi-million-dollar food irradiator to Ivory Coast as part of a plan to irradiate as many as 100,000 metric tons of yams annually.

Yams are consumed regularly by most people in the African country. "It's the basic food—it's on the table for most meals," said Frank Fraser, vice-president of market development at AECL's radiochemical division. [passage omitted]

Critics in Canada are alarmed by the sale. They are worried about the health effects of long-term consumption of large quantities of irradiated food.

But AECL officials insist that irradiated food is absolutely safe, even if consumed daily.

The irradiator in Ivory Coast will use gamma rays from a radioactive source to kill bacteria in the yams, allowing them to be stored for as long as eight months without spoiling.

The unit might also irradiate other foods, such as bananas, millet, corn and plantain, a banana-like plant, Mr. Fraser said.

The irradiation equipment is scheduled to be shipped to Ivory Coast within the next month. "We hope to have it operating in the first quarter of next year," Mr. Fraser said.

In the first year, about 35,000 tons of yams would be irradiated, but the annual total would eventually rise to 100,000 tons.

Energy Minister Urges Review of Nuclear Waste Disposal

51200002 Vancouver *THE SUN* in English
29 Sep 88 p A19

[Article: "Masse Urges Nuclear Waste Review"]

[Text] Ottawa—Energy Minister Marcel Masse wants the government to establish a board to look at the possibilities for nuclear waste disposal underground in the Canadian Shield.

In a letter to Environment Minister Tom McMillan, Masse asked Wednesday that an environmental assessment review panel be set up that will also look at a wide range of other nuclear fuel waste management issues.

He wrote that the long-term management of nuclear fuel waste is a matter of great concern to Canadians and that "the review will provide an opportunity for full public discussions of these issues.

"We want to evaluate our disposal concept and to look at other approaches to long-term management, such as those developed in other countries."

Missed Safety Deadline Results in Shutdown of Bruce Reactors

51200003 Ottawa *THE OTTAWA CITIZEN* in English
30 Sep 88 p A5

[Article: "Idle Reactors Cost Ontario Hydro \$700,000 a Day"]

[Text] Toronto (CP)—Ontario Hydro has shut down two reactors at one of the Bruce nuclear power plants at a cost of \$700,000 a day because it missed a deadline for installing new safety equipment.

"There will be some cost (to consumers) because those two reactors won't be running," said Hydro spokesman Terry Young. "It's too early to say how much."

The Atomic Energy Control Board refused to extend a Sept. 30 deadline for installation of a computerized automatic shutoff system that could prevent severe damage and a radioactive leak if there was an accident at the plant, located near Owen Sound.

If the reactors are down for as long as six months, the province could find itself short of power, Hydro spokesman Dave Stevens said from Owen Sound.

"Over the next couple of days it's not going to be too difficult to deal with," Stevens said.

Hydro usually replaces nuclear power by increasing production at coal-fired plants.

The Bruce plant's two other reactors are already down for maintenance. The four of them combined produce about 3,200 megawatts of power—enough to supply two cities the size of Toronto.

Ontario Hydro was told in January it had nine months to install permanent safety equipment, which would automatically shut down pumps at the plant if there were a loss of water pressure.

An interim shutoff system was installed last year.

Young said the reactors could be up and running in a few days if the control board approves a plan to have the safety equipment installed by the end of March and grants a new extension.

"The equipment wasn't ready and hadn't been properly tested," he said of the delay. "It's one of those things that you don't want to rush."

"If their plans and schedules are satisfactory to us, then we might reconsider our decision," atomic energy board spokesman Bob Potvin said from Ottawa.

"We haven't asked them to reinvent the wheel. We felt the time they had from last January to the deadline was a reasonable amount of time to plan, design and install the system."

Potvin said the situation is unique to the Bruce plant since the province's other reactors already have automatic shutoff systems.

Dispute Over Nuclear Submarine Acquisitions Reported

Prosubmarine Campaign

51200006 Windsor THE WINDSOR STAR in English
13 Oct 88 p E1

[Article by Jonathan Manthorpe/Southam News: "Pro-Submarine Campaign Grows With Help From Defence Industry"]

[Text] Ottawa—A new lobby groups says Canadians will support the program to build a fleet of nuclear-powered submarines if all the issues are placed before them.

"An informed electorate will think right, by my lights," said retired vice-admiral John O'Brien Wednesday as he announced the formation of a central Canadian chapter of the Defence Associations Network.

The first association in the network was formed a month ago in Halifax. It claims to already represent 35,000 people in veterans' organizations, individuals and the defence industry. The group plans to soon open branches in the West and says it has the potential to represent 800,000 people.

"The network was formed to bring to (the defence) debate the perspective and opinions of a very large number of Canadians who support strong, modern and effective Canadian Armed Forces," O'Brien said. "These Canadians want a country that enjoys peace, security and sovereignty and this entails paying the price for an effective national defence."

Many Canadians mistakenly believe the proposed submarine fleet will be armed with nuclear weapons when they are only powered by nuclear reactors, he said. The price—estimated by the government at \$8 billion—is in line with what it would cost to build an equivalent force of conventionally powered submarines.

And nuclear-propelled submarines are the only vessels that can patrol Canadian-claimed waters under the Arctic ice, he said.

O'Brien, a former commandant of the NATO Defence College in Rome and 28-year veteran of the Canadian Navy, said while the group supports the government's plans to re-equip the armed forces, it is non-partisan.

The government has not encouraged the formation of the network, he said.

"We exist as a challenge to anyone who forms a government if they are going to back off from following up on the policy," he said.

Insiders said this includes keeping the conservatives to their commitment of spending \$200 billion on the armed forces during the next 20 years. They are particularly concerned that the Tories stick to their plans to build 10 or 12 nuclear-powered submarines.

O'Brien said while opponents of the submarine program and increased military spending have been vocal, "there are an awful lot of people in this country who wish to be informed on the realities of defence policy and spending who are not getting the message they should."

He said the association plans to take its message across Ontario and Quebec by organizing forums and by confronting in word and print the views of opponents of defence spending.

Antisubmarine Peace Group
51200006 Vancouver *THE SUN in English*
11 Oct 88 p A14

[Article by Glenn Bohn: "Vote 'No' on Sub Spending, Peace Group Tells Canadians"]

[Text] A sign at Robson Square this long weekend urged Canadians to "pin your dollar where you want your tax dollars to go."

There were no bills on one side—"To buy a fleet of nuclear-powered hunter-killer attack submarines?"

The donations were all on the other side—"Education, medical services, environment, home building and child care."

Lydia Sayle, B.C. co-chairman of the Canadian Peace Pledge Campaign, said the campaign will ensure the Progressive Conservative government's decision to spend \$14 billion on nuclear submarines is a federal election issue.

Voters Asked for Pledge

"We're going to make peace an issue," she said in an interview. "We're going to show that military investment only creates about half the jobs that hospital development does, and about a quarter of the jobs that transportation and city infrastructure does. As we make (peace issues) more and more important in the campaign, the opposition parties will be speaking more to them."

The campaign urges voters to sign a pledge "to vote for candidates who will actively work for a new peace policy which will end Canada's support for the arms race, make Canada a nuclear weapons-free zone and make Canada an international voice for peace."

"There are now some 70,000 peace pledges collected in Canada, and B.C. has about 20 per cent," Sayle said.

A few kilometres away, at the edge of the city declared "nuclear weapons-free" by Vancouver council, a U.S. submarine was tied up at Ballantyne Pier. The Port of Vancouver is under federal jurisdiction and national defence policy supports the U.S. policy to neither confirm nor deny the presence of nuclear weapons.

Speakers told about 50 people at the demonstration that about 60 per cent of the Canadian population live in areas that local governments have declared nuclear-free, and the next step was a nation that was entirely nuclear weapons-free—a Canada that didn't participate in such things as Star Wars research or cruise missile tests, and didn't allow nuclear-capable ships and submarines to enter its waters.

The Canadian Peace Pledge Campaign is also doing a "peace survey" of candidates and plans to publicize their answers.

Drive Felt Non-Partisan

Sayle described the group as "non-partisan" when asked whether it would endorse any political party. She said the voters would make up their own minds when they learned how the candidates had responded to the survey.

Associate Minister, Jane's Editor on Nuclear Submarine

51200007 Toronto *THE GLOBE AND MAIL*
in English 21 Oct 88 p B8

[Article by Ken Romain: "Submarine Decision Unlikely Before February"]

[Text] Ottawa—A cabinet decision on the selection of a nuclear-powered submarine for the Canadian Forces is not likely to be made until February, says Paul Dick, Associate Minister of National Defence.

Speaking on the assumption that a Progressive Conservative Party government will be re-elected in the Nov. 21 general election, Mr. Dick said the government's first priority will be to get the free-trade agreement between Canada and the United States through the House of Commons and the Senate before Christmas.

"We will then all probably want to take a break from the middle to the end of January, so I can't see us getting down to serious business (on the submarines) until February."

He indicated that child-care legislation could also replace any priority attached to making a decision on purchasing either the British Trafalgar class vessel or the French Rubis-Amethyste design.

Mr. Dick also said that defence spending on new equipment programs this year likely will be about 3 per cent higher than last year. Increases will remain at that level during the next five years, and then rise to 4 per cent in the following five years. The increase in the level of capital spending will be much higher than the 2 per cent rise forecast in the white paper on defence issued in June, 1987.

His remarks were made after an address to a defence industry conference sponsored by the Financial Post.

The postponement sets back the controversial \$8-billion submarine program by almost a year and delays the Defence Department's procurement schedule. The Liberal and New Democratic parties strongly oppose the nuclear-powered submarine project.

The intention to acquire 10 to 12 nuclear-powered submarines was announced in the defence white paper. The selection of the country of origin for the submarine was to have been made by the spring of this year, with the entry of the first boat into service by the mid-1990s. The vessels will be built in Canada by a Canadian prime contractor not yet selected.

Mr. Dick said the Defence Department has not yet made a recommendation to cabinet on what vessel to obtain. "We are ready to make a recommendation, but there are still some components we have to pull together."

The cabinet will look at the two designs as it usually does on items that require large expenditure and try to come to a decision on a choice of vessel.

In his address, Mr. Dick said he is certain that the \$8-billion cost will not be exceeded.

"We have high confidence in our estimate that a program of 10 to 12 boats and the necessary infrastructure can be brought in for about \$8-billion in 1986-87 dollars."

This is to be spent over the 27-year life of the program at an annual cost of \$300-million.

The financial estimate, he said, is based on much harder cost information than was available for the department's estimate of the first batch of six frigates now under construction. That program is on schedule and on budget.

He said the nuclear-powered submarines were the least expensive of the options that could have been considered to strengthen the Canadian navy.

Captain Richard Sharpe, editor of *Jane's Fighting Ships* and a former Royal Navy submarine commander, said the flexibility and mobility of a nuclear-powered submarine relegates a diesel-powered submarine to the role of an "intelligent floating mine."

As a warship, it is right for those countries that want to dominate their maritime regions and, if necessary, project power in support of more distant interests. However, he said the matter of Canada acquiring nuclear submarines, is a question entirely for Canadians to answer.

He said nuclear submarines could make a far greater contribution to the North Atlantic Treaty Organization's inadequate anti-submarine force than any other type of warship or aircraft.

He said the Soviet Union is now building 25,000-ton Typhoon class submarines specifically designed for under-ice Arctic patrols. With their great weight, they can easily break through ice three to four metres thick.

He said he is not aware that the Soviet Union is doing any under-ice patrolling on the Canadian side of the Arctic Ocean, but there is no doubt it has the capability to do so.

The peacetime utility of a nuclear submarine is that it is difficult to know where it is. But the knowledge that one could be patrolling is a powerful disincentive to seaborne unlawfulness and aggression.

"If Canada has a nuclear submarine flotilla, both the Soviet Union and the United States are going to have to take notice in a way that up to now, perhaps, they have not," he said.

Lobby Groups Take Contrasting Stands on Nuclear Issues

51200008 Toronto THE TORONTO STAR in English
4 Nov 88 p A22

[Article by Olivia Ward: "NATO, Nuclear Subs Elusive"]

[Text] In the U.S. election, defence is a bare-knuckle issue. Canada's political leaders are handling it with kid gloves.

A mention of nuclear subs makes Tories submerge. Talk of NATO sends New Democrats sputtering. And Liberals can't agree long enough to take a stand on any coherent defence policy.

The televised leaders' debate exhumed the issue, but for mere minutes. And, peace groups say, it will vanish just as quickly without continuing pressure.

"Defence is the low-profile issue in this election," says Robert Penner of the Canadian Peace Alliance, an umbrella group for peace organizations. "The parties don't want to discuss it, because they've all got something they want to keep hidden."

Controversial Policy

The Conservatives, for example, have a controversial policy that calls for acquiring nuclear submarines, while the New Democrats want Canada eventually to pull out of NATO (North Atlantic Treaty Organization) and NORAD (North American Aerospace Defence Command).

Peace advocates believe the defence issue is urgent. If military spending escalates, they argue, our deficit will soar. And if the next government opts for jobs through military programs, the economy will take a turn that may be very difficult to reverse.

Some 150 peace groups across Canada marched to their local Conservative party headquarters last weekend to protest the free trade deal and the government's white paper on defence.

"All this talk of nuclear weapons cuts lulls people into a false sense of security," says John Lamb of the Canadian Centre for Arms Control and Disarmament.

"It's true that reductions are being made. But they're not as extensive as people are led to believe and meanwhile a new generation of deadlier weapons is taking their place.

"If the opposition parties were doing their job on defence, we'd never have to get into the debate," says Lamb, who founded the centre in 1984 as an educational body for the public and the government.

At the grass roots level, Lamb says, the defence debate is as sparse as it is among politicians. But retired Vice Admiral John O'Brien of the Defence Association Network, and other spokesmen for defence and disarmament issues have put their vision of Canada's future on record.

"'Peace at any price' has to be replaced with 'peace has its price,'" says O'Brien, whose organization claims 35,000 members, most of them in Canadian Legion and veterans' groups.

The organization believes:

- Making Canada a nuclear weapons-free zone is "impossible and unlikely" and a violation of agreements with out allies.
- Canada should remain in NORAD and NATO.
- Nuclear submarines are the "only sensible submersibles" for Canada, because of their superior speed and manoeuvrability.
- Cruise missile testing should continue because of the agreement with the U.S., but government should review the agreement before renewing it in future.

Taking a very different stance is the Canadian Peace Pledge organization, a peace movement group that claims 250,000 members.

"Our government is not thinking globally, it's thinking like Rambo," says one of its newspaper ads.

Through lectures, demonstrations, and advertising, the group's members try to persuade voters to take the pledge "to vote for candidates who will actively work for a new peace policy which will end Canada's support for the arms race, make Canada a nuclear weapons free zone and an international voice for peace."

'Nickel and Dime'

Run by committee, funded by "nickel and dime donations" (and some union money), the newly formed pledge organization has raised \$250,000 for its pre-election campaign. Its view of Canada is uncompromisingly unmilitary. Critics charge that it's also "impractical."

The organization believes:

- Action should be taken to end all support for the arms race in the air, on the sea and on land.

- Entry should be refused to warships and other vessels potentially armed with nuclear weapons.

- Canada should stop all participation in nuclear weapons manufacture, crack down on export of Canadian nuclear material and end NATO's use of Canadian airspace for flight training of nuclear-bearing planes.

- Ottawa should give top priority to a Comprehensive Test Ban treaty to end nuclear weapons testing, regardless of the U.S. position.

- The Conservative government's \$8 billion nuclear-powered sub program should be cancelled.

- Cruise missile tests in the north should be banned.

Standing somewhere between the Defence Association Network and the Canadian Peace Pledge Organization, is the Canadian Centre for Arms Control and Disarmament. Among its views:

- The cost of declaring Canada a nuclear weapons-free zone would outweigh the benefits. Such a declaration would alienate our allies, have little effect on nuclear arms reductions and might reduce Canada's influence in international arms control, it says.

- There should be a more independent stand for Canada on a Comprehensive Test Ban treaty.

- Canada should not leave the NORAD partnership but Ottawa should be "more assertive" in its position in the alliance.

- Canada should maintain its membership in NATO, but there is too much emphasis placed on NATO and the Atlantic, instead of the more unstable Pacific region.

- The government should cancel its nuclear-powered sub program.

- An international "Arctic regime" should be established to settle northern sovereignty issues among Canada and its neighbors.

- Testing of current cruise missiles should continue because they are "obvious second-strike, or retaliatory weapons only." However, Canada should not permit testing of a new generation of advanced cruise missiles that could be used as first-strike weapons.

INTRABLOC

CEMA Nuclear Powl. Experts Meet in Warsaw
LD0912000588 Warsaw PAP in English
1931 GMT 8 Dec 88

[Text] Warsaw, Dec 8—A conference of chairmen of state atomic energy supervision authorities of CEMA member states was held here today with a view to working out uniform technical norms for the nuclear power industries of all CEMA countries and supervision over nuclear objects being constructed in those countries with the technical aid of the Soviet Union.

Participants in the conference paid particular attention to coordination of ventures calculated to ensure full safety of the existing and planned nuclear power plants, training of nuclear supervision inspectors, and organization of activities of supervision bodies.

The conference, chaired by Mieczyslaw Sowinski, chairman of the Polish Atomic Energy Agency, PAA, was preceded by a visit by a group of Soviet specialists with Vadim Malyshev, chairman of that country's state committee for supervising the safe conduct of work in the atomic power-generating industry, to the construction site of Poland's first nuclear power plant, in Zarnowiec, northern Poland.

CZECHOSLOVAKIA

Spokesman Denies Nuclear Reactor Breakdown
AU2811110188 Warsaw TRYBUNA LUDU in Polish
24 Nov 88 p 6

[Text] PAP, Prague—In connection with the rumors that circulated extensively in Poland on 23 November to the effect that a "radioactive cloud" had appeared and that, as some of these rumors alleged, "a CSSR nuclear energy power station had suffered a breakdown," the PAP correspondent in Prague contacted Miroslav Pavel, CSSR Government spokesman, that evening in connection with the matter.

"I declare most categorically that there has been no breakdown in a nuclear power station in the CSSR," Pavel said. "If something like that had happened, the CSSR, in accordance with the international accords ratified by it, would have at once informed all neighboring countries about such a breakdown."

'Decontamination Station' Goes Into Operation
AU0512133988 Prague RUDE PRAVO in Czech
1 Dec 88 p 1

[CTK report: "Ceska Lipa Miners' Contribution to Mine Waters Protection"]

[Summary] The "central decontamination station," which was built in the concern enterprise Uranium Mines Hamr in the Ceska Lipa region, is in full operation

now. The facility, which pumps and purifies water from the mines, is completely automated and controlled by electronics, took 4 years to build, and cost some Kcs300 million.

GERMAN DEMOCRATIC REPUBLIC

Finnish Experts at Radiation Protection Center
A1/09121516L8 East Berlin NEUES DEUTSCHLAND
in German 2 Dec 88 p 2

[Text] East Berlin—On Thursday [1 December], a delegation of representatives of the Radiation Protection Center and the Finnish Foreign Ministry held negotiations in the GDR State Office for Nuclear Safety and Radiation Protection in Berlin. The talks were designed to deepen the contacts in the field of nuclear safety and radiation protection.

Physicians Protest South Pacific Nuclear Tests
AU1111181088 East Berlin NEUES DEUTSCHLAND
in German 10 Nov 88 p 2

[Text] East Berlin (ADN)—In connection with France's underground nuclear tests on 26 October and 6 November 1988 in the South Pacific, Moritz Mebel, chairman of the association of International Physicians for the Prevention of Nuclear War, on Wednesday [9 November] sent a message to Joelle Timau, French ambassador to the GDR. The letter reiterates the standpoint of the medical scientists who are united in the association of International Physicians for the Prevention of Nuclear War (IPPNW) that a halt to all nuclear tests would be a decisive step on the path toward a nuclear-free world. Moritz Mebel reported on the corresponding statement adopted by the Fourth European IPPNW Symposium, which was held recently, and requested that the diplomat receive a delegation of the GDR section of the IPPNW, which would like to explain its viewpoint personally.

POLAND

Soviet Nuclear-Safety Expert Arrives
LD0612222988 Warsaw PAP in English
2129 GMT 6 Dec 88

[Text] Warsaw, Dec 6—Vadim Malyshev, chairman of the Soviet State Committee for Nuclear Power Safety, arrived in Warsaw today.

Malyshev took part in today's meeting attended by experts who work on the construction of Poland's first nuclear power plant in Zarnowiec.

The meeting, chaired by head of the state atomic agency Mieczyslaw Sowinski, was attended by top officials of the state nuclear monitoring, management members of the "Zarnowiec" nuclear power plant under construction and the management of the planned second Polish nuclear power plant.

Experts discussed key problems linked with the security of nuclear power installations.

During his visit, Vadim Malyshev is to acquaint himself with the problems of the nuclear safety supervision in Poland and with the construction of the "Zarnowiec" plant.

Malyshev's visit coincides with a planned meeting of chairmen of nuclear monitoring agencies from CEMA countries.

Atomic Energy Official Denies Accident Rumors
LD2311193688 Warsaw Television Service
in Polish 1830 GMT 23 Nov 88

[Text]

[Announcer] Many of you have been calling our editorial team, asking whether there really was a breakdown [awaria] of a nuclear reactor today. There is talk of a breakdown in Swierk, and even in Czechoslovakia and the GDR. We have in the studio Docent Mieczyslaw Sowinski, Chairman of the State Atomic Energy Agency. Sir, 3 hours ago, we received a PAP communique that stated that no increase in the level of radioactive contamination has been noted anywhere in the country, but it does not say straight out whether or not any kind of accident took place. What, then, is the truth?

[Sowinski] Well, in accord with that communique, the fact that there is no increase in radioactivity undoubtedly proves unambiguously that no radiation accident or nuclear breakdown has taken place, (as a result?) of which a wave or cloud of radioactive dust or other substances could have arrived in our country.

[Announcer] And tests abroad, have they... on our measurements. As you remember, about 140 stations take readings systematically. They are based in various places in Poland and none of them has noted or has given a signal to Warsaw, to the central laboratory (for radiological protection), of an increase in radioactivity. Also, to make sure, I was in contact with the IAEA an hour before coming to the studio. The IAEA carries out systematic... it has systematic contacts with all centers throughout the world....

[Announcer] In Vienna?

[Sowinski] In Vienna, under the convention on (warnings) of nuclear breakdowns. I also obtained the information that, as of 1730 hours today, the agency had not received reports...

[Announcer, interrupting] How can you trust these measurements to be reliable?

[Sowinski] Well, sir, I (can) go at any time to the Central Radiological Protection Laboratory and see, because those measurements are taken automatically on paper tape and magnetic tape. In fact, at any moment, (one can view) not just what is currently being measured, but also what was noted a day, a week, or a month ago. That is one thing.

After Chernobyl, the system that had been in existence in Poland for 20 years was modernized and considerably improved on the basis of the results we obtained after Chernobyl. I would like to calm you and all the viewers. If anything had happened, we would have noticed it right away. It is a rumor, and I would like to take this opportunity to appeal to all viewers, and especially to scientists, to condemn such rumors, for they are a public danger. This is the third rumor of its kind this year. The first was in Krakow about a year ago, the second came a few months ago in Wroclaw, and now in Warsaw. This kind of rumor causes a certain insensibility; it could make people insensible to recommendations or requests in the event of a real danger situation.

[Announcer] Thank you for that explanation, and especially for the final warning. Thank you.

Official Denies Increase in Radiation
AU2811110088 Warsaw TRYBUNA LUDU in Polish
24 Nov 88 p 6

[PAP report: "The Chairman of the State Atomic Energy Agency: 'No Increase in Radiation in Poland'"]

[Text] In connection with the rumors circulating that the level of nuclear radiation has increased in Poland because of a breakdown of a nuclear reactor, Docent Mieczyslaw Sowinski, chairman of the State Atomic Energy Agency, made a statement on the television newscast on 23 November.

"As the communique issued by the Central Laboratory for Radiation Protection shows, no increase in radiation has been recorded anywhere in Poland," M. Sowinski said. "This means that there has been no accident or breakdown, which would have brought radioactive dust or substances into our country. I base this opinion on the strength of the measurements carried out by about 140 stations throughout Poland. None of these stations has reported any increase in radiation. To make sure," M. Sowinski continues, "I have contacted the IAEA in Vienna, which always keeps in touch with all atomic centers in the world. I was told that the IAEA had received no disturbing information up to 1830 on 23 November, which means that the rumors about a breakdown are just rumors."

"I would like to appeal to everyone to condemn such rumors, which have been in circulation for the third time this year. We should realize that recurring rumors help create typical insensitiveness, which may result in the absence of response to real danger," M. Sowinski said in conclusion.

YUGOSLAVIA

Krsko Nuclear Power Plant Shut Because of Damage
LD0312143288 Belgrade TANJUG in English
1308 GMT 3 Dec 88

[Text] Krsko, Dec 3 (TANJUG)—Production once again came to a halt in the Krsko nuclear power plant last night due to a fault in the 21-kW transformer.

The damage was caused by a short circuit between the electric equipment and the earthing which caused a sudden drop in the plant's power output and the shutting down of the 400-kW network supply.

The generator and the transformer were shut down before midnight and preparations are already under way to repair the damage.

The transformer was built on November 30, the last day of the Yugoslav national holiday, to replace the one recently damaged in a storm. The breakdown in Krsko did not affect the operation security of Yugoslavia's only nuclear power plant. According to evaluations by international commissions, Krsko is among the most secure nuclear plants of this kind in the world.

The 632-kW plant has been in operation since the 1970s.

ARGENTINA

Presidents Alfonsín, Sarney Sign Nuclear Statement

PY3011001088 Buenos Aires TELAM in Spanish
2222 GMT 29 Nov 88

[Text] Buenos Aires, 29 Nov (TELAM)—Brazilian President Jose Sarney and Argentine President Raul Alfonsín this afternoon signed the Ezeiza Declaration on nuclear policy. The document, which was signed at Government House, is part of the integration process undertaken by the two countries.

In their joint statement, the two presidents stated their decision to continue to promote—through the Standing Committee on Nuclear Policy—close political contacts, various joint projects, and a smooth exchange of information, experience, and technicians.

The document states that these are the appropriate means to ensure a steady progress toward achieving lasting, effective cooperation mechanisms in the nuclear field in keeping with our solid friendship and our firm commitment to peace and development.

The document reaffirms that the nuclear programs of both countries are guided by an unwavering decision to promote peace, and that both parties are firmly convinced that their programs will bring about socioeconomic benefits.

The document also emphasizes the commitments assumed by both parties in their joint statements of Foz de Iguazu, Brasilia, Viedma, and Iperó.

CNEA, Siemens Sign Accord for Nuclear Plant

PY2411202788 Buenos Aires TELAM in Spanish
1137 GMT 24 Nov 88

[Text] Munich, FRG, 24 Nov (TELAM)—Today the CNEA and the German Siemens company signed a memorandum of understanding to finance the necessary supplies and services to continue the construction of the Atucha II nuclear plant. The agreement runs from 1989 to 1991. Atucha II could begin operating in 1994.

The memorandum was signed by a Siemens representative and CNEA chairperson Emma Perez Ferreira. The signing ceremony was held at the hotel where President Raul Alfonsín is staying in Munich. Alfonsín attended the ceremony.

During the ceremony, Alfonsín said that this type of cooperation confirms historical traditions between Germany and Argentina.

The memorandum, which should be approved by the governments of the two countries, establishes that in 1989 the CNEA will cover its own costs, as well as those involving transportation, insurance, taxes, initial payments for imports, and liaison operational costs totaling some \$34 million.

On the other hand, Siemens will allocate additional funds required for 1989 so the project continues to develop. Both countries will allocate some \$68 million to fund the plant.

According to the memorandum, any credit not originating in the FRG may be considered a CNEA contribution.

To implement the financing, the German side will secure, through banks, credit totaling \$200 million for the 1989-91 period.

The memorandum establishes that if German credit is not totally used during 1989-91 because of Argentine contributions, it may be transferred to 1991.

The Argentine Government will attempt to begin operations in the Atucha II nuclear power plant in 1994.

BRAZIL

IPEN Activates Indigenous Reactor at USP

Fuel Elements To Be Tested

51002036 Sao Paulo O ESTADO DE SAO PAULO
in Portuguese 9 Nov 88 p 12

[Article by Rubens Santos]

[Text] Brasilia—The first completely Brazilian nuclear energy reactor will today begin operations at the Institute for Nuclear and Energy Research (IPEN), on the campus of the University of Sao Paulo (USP). The authorization for the start-up operations is part of a set of resolutions by the National Commission for Nuclear Energy (CNEN), published yesterday in the DIARIO OFICIAL and confirmed for AGENCIA ESTADO by IPEN Superintendent Claudio Rodrigues.

Without ribbon-cutting or inaugural speeches, the country has taken an important step toward mastering the nuclear technology cycle with Brazilian labor and materials, beginning with the 1987 announcement about mastering the technology involved in uranium enrichment by centrifuge, begun the previous year.

The reactor is of small capacity and has zero power. With a current of 100 million neutrons per square centimeter per second, the reactor will serve as a tool for Brazilian scientists studying the transformation and acquisition (configuration) of atomic fuel for a future reactor, also Brazilian, capable of generating energy. When operating, the IPEN reactor will allow tests to be performed on the application of fuel elements through a critical unit (reactor), and will also support the testing of components and their applications for power reactors. Cold testing of these fuel elements will be made possible by using purification units.

The process of transforming and acquiring atomic fuel begins with the mining of uranium from the Pocos de Caldas deposits. The mineral then goes to be purified at IPEN using chemical processes. It is now in the form of uranium tetrafluoride compound, and in the second phase uranium hexafluoride. In the third phase the uranium is converted to its gaseous form, which is

utilized by the enrichment plant. In the last step of the process the proportion of whole uranium is increased when, returning to the solid phase, the reversion to uranium dioxide takes place. The result of this phase is the tablet, armored with rods. The fuel element is ready to be tested for use in power reactors.

Commemoration

"The start-up of the first Brazilian reactor is an historic fact," says IPEN Superintendent Claudio Rodrigues enthusiastically. He stresses the Brazilian effort in the quest for scientific and technological progress in the area of the so-called nuclear fuel cycle.

Before granting authorization for the start-up of the first IPEN reactor, the CNEN evaluated an extensive list of security precautions that will permit the Institute to handle and utilize nuclear materials in their reactor.

A Technological Cycle Is Completed

On 4 September of last year President Jose Sarney made the surprise announcement in Planalto Palace that the country would succeed in mastering the complete atomic energy cycle, having developed uranium enrichment technology through the use of ultracentrifuges. The president called this accomplishment "a fact of great importance in the scientific history of Brazil."

In the announcement, President Jose Sarney hailed the official launching of the old "parallel nuclear program," which survived clandestinely for 7 years. The nuclear program, now classified as "autonomous," provided cover for the official program, which originated in an agreement signed with Germany in 1975.

After having wasted an admitted total of \$4.5 billion with additional expenses anticipated at \$3.5 billion, this program left as a legacy of its failure the specter of the Angra I (the Westinghouse "lightswitch plant," that turned on and off) and Angra II nuclear plants, built by Siemens of Germany, whose work progresses at a holidaylike pace.

The official program used centrifugal technology, considered by the scientific community to be of extremely dubious value. This technology already existed 30 years ago and the Germans themselves had relegated it to the back burner.

The autonomous nuclear program was created by former President Geisel in March of 1979, 3 days before handing the reins of power to General Joao Baptista Figueiredo. According to National Commission for Nuclear Energy President Rex Nazare, the program has spent \$500 million to date.

The project effectively began 2 February 1980, with the special projects program the navy instituted on the USP campus in cooperation with the Institute for Nuclear and Energy Research (IPEN). Since then it has been the target of accusations, scandals and rivalries, primarily on

the part of the scientific community, but it has never slowed down. Now, with the startup of the Brazilian reactor, a technological cycle has been completed.

Scientific Isolationism Criticized

51002036 Sao Paulo O ESTADO DE SAO PAULO
in Portuguese 11 Nov 88 p 3

[Text] The Institute for Nuclear and Energy Research (IPEN) in Sao Paulo has begun to activate the first research reactor made in Brazil. Constructed using Brazilian engineers, staff, and materials, the plant is of zero power (100 watts). To evaluate what that means, one need only remember that the 600-kilowatt Angra dos Reis reactor produces 600 million watts, which shows that the IPEN reactor is strictly a laboratory instrument.

It is quite true—and this is the primary merit of the event—that it was entirely constructed in Brazil and by Brazilians. But that is as far as it goes. Argentina has produced such plants since 1970, which is to say that for the moment we are making up for lost time. Nothing more. The fact that the reactor was constructed entirely in Brazil with indigenous technology perhaps does not compensate for the backwardness that it cost us. Reactors of this type have been manufactured in the developed world for 30 or 40 years, serving as a base for the evolution of nuclear research. What the country really did was undertake, all alone, something that could have been done with the collaboration of other nations, who would never have denied us assistance, at least at the time of the signing of the nuclear agreement with the FRG. And the price of that decision, taken in the name of national sovereignty, is many decades of backwardness.

Today more than ever the Brazilian scientific community, standing at the margin of nuclear programs, is convinced that if we had initiated the construction of this type of reactors in 1975, instead of venturing into the German program, we would surely have been farther ahead, constructing our own plants not of zero power for laboratory use only, but of somewhere around 40,000 or 50,000 kilowatts.

These numbers serve to show the dimensions of the backwardness, and they are even more eloquent when we realize that our reactor is not innovative in the least, nor is it possible for it to be so with respect to those which existed some decades ago. The technology is old, well-known, and published everywhere. We succeeded in arriving at this point with our own efforts, retracing the steps taken by others long before. In the scientific community it is often said that when it let itself become obsessed with the German nuclear program, Brazil decided to construct Boeings when it first should have produced Bandeirante airplanes. Which brings up the fact that Embraer, having adopted the opposite strategy, has gained ground and is steadily achieving apparently unprecedented progress in the space of only a few years.

One obviously cannot deny the great achievement of the Brazilian technicians in succeeding, all by themselves, in so accurately retracing the steps of others. We made our reactor without any foreign assistance, with Brazilian

parts and engineering, translating the potential capabilities of our technicians into reality. As Professor Jose Goldemberg points out, the conquest, though significant, puts us in the position already attained by several nations 20 years ago.

Now we are going to continue retracing the steps of the past. The next reactor will be the second generation of this type, of 50,000 kilowatts. When will it be finished? No one knows. Meanwhile, other countries who decide to adopt more pragmatic and less isolationist programs

will continue to progress, moving farther and farther ahead of Brazil in a field experiencing tremendous technological evolution, which we do not possess. This situation, by the way, is very similar to that observed in the area of computers, where we announced with great fanfare the manufacture of entirely Brazilian computers that simply copy those once produced in other countries but which are now obsolete throughout the entire world.... In science, isolationism brings with it the roots of backwardness, an example of which is the first research reactor built in Brazil.

EGYPT

Conference Reportedly Confirms Viability of Nuclear Energy

51004602 Cairo AL-AHRAM AL-DUWALI in Arabic
27 Nov 88 p 5

[Article by Mahmud al-Qanawati]

[Text] Al-Dab'ah—Dr 'Ali al-Sa'idi, head of the nuclear power plant organization, has announced during a conference on the future of nuclear energy in Egypt that "this type of energy represents the best alternative for attaining the 10,000 to 20,000 megawatts of electricity that we shall require up to the year 2000." He affirmed that there were no problems in financing these plants since 750 million dollars in the energy fund are allocated for energy projects.

Dr al-Sa'idi said during the conference, which met in al-Dab'ah District and was organized by the nuclear power plant organization in cooperation with the Al-Ahram Strategic Studies Center, that Egypt will be forced to buy the foreign partner's share of Egyptian petroleum from 1992 on if it is completely dependent on oil for the production of electricity. Furthermore, the price of electricity per kilowatt produced by nuclear power is half the price per kilowatt produced by oil, and a third of that produced by imported coal.

He also affirmed that, "We are completely ready to introduce nuclear technology inasmuch as the IAEA has indicated that Egypt is at the head of 14 countries in the world which are completely ready to utilize nuclear energy.

Dr Hafiz al-Hajji, second in command of the organization, said that studies completed in cooperation with Canada and some Egyptian industrial companies had indicated that national industries could participate in more than 50 percent of the first nuclear plant and in up to 70 percent of the fourth plant.

Dr Ibrahim al-'Asiri, the organization's expert, asserted that the studies had confirmed ample uranium ore to operate these reactors in addition to making the manufacture of nuclear fuel possible using national expertise, beginning next year.

Dr 'Adil Talabah, director of studies and nuclear safety, explained that the organization had, in partnership with the IAEA, finished all of the studies related to plant construction from an environmental standpoint and that the price of a coal-fired plant with its environmental protection measures is greater than that of a nuclear power plant. Furthermore, the coal-fired plant requires annual financing amounting to 2 million pounds. He added that he is working on the final stages of building a nuclear waste treatment plant with the cooperation of the IAEA.

Officials on Nuclear Energy Program

NC0112162688 Cairo MENA in Arabic
1330 GMT 1 Dec 88

[Excerpts] Cairo, 1 Dec (MENA)—Dr 'Ali al-Sa'idi, chairman of the Nuclear Plant Authority, has announced that a feasibility study will be conducted on the establishment of sophisticated small and medium-sized nuclear reactors for electricity generation in Egypt. The components and parts required for these reactors will be supplied mostly by local manufacturers, he said.

Dr al-Sa'idi was speaking at a seminar on the future of nuclear energy, organized by Al-Zaqaziq University as part of the 11th annual conference on scientific research and applications.

Dr al-Sa'idi stated that an agreement has been reached with the IAEA to launch studies on the possibility of introducing these types of reactors, with emphasis on the local manufacture of most components. [passage omitted]

Dr al-Sa'idi stressed that the decision to build the first electricity generating reactor must take several political considerations into account. These include the verification of the availability of nuclear safety requirements; access to data pertaining to nuclear energy; the existence of the appropriate legislation to protect man and the environment; safety measures; the availability of technical and scientific cadres who are capable of absorbing the required technology; the availability of foreign finance; and the approval of all state authorities, particularly in light of the Chernobyl incident. [passage omitted]

Dr Hamid Rushdi, chairman of the Atomic Energy Authority, asserted that the authority is fully aware of its responsibility concerning the transfer of nuclear technology and its adaptation to our needs. It is also very aware that the greatest attention must be paid to the question of safety and protection against nuclear radiation in handling isotopes and nuclear reactors, he said. His speech was delivered on his behalf by Dr Fawzi Hammad, director of the nuclear safety department.

Dr Rushdi noted that in the past few years, Egypt had set out to develop a national base for nuclear manufacture. Examples of this are the local manufacture of nuclear fuel rods, heavy water, radioactive sources used in medical applications, radiometers, and radio detection equipment.

Dr Rushdi asserted that the Atomic Energy Authority is aware of its responsibility to dispose properly of nuclear waste. It is also aware of the extent of radiation-affected foodstuff stocks waiting for illegal disposal in certain countries, he added.

For his part, Dr Husayn 'Abd al-Muhsin, head of the Nuclear Substances Authority, asserted that the use of nuclear energy in generating electricity requires the outlining of a national strategy for the local production of the nuclear fuel uranium. In this way, he said, Egypt will avoid falling under the pressure of international monopoly and the producer countries' monopoly of purchasing operations, and will also avoid becoming subservient to international political currents. [passage omitted]

INDIA

Delhi Denies Indian Air Force Has Nuclear Bomb
51500026 Madras *THE HINDU* in English
5 Oct 88 p 7

[Article: "Report on Indian N-Bomb Without Substance"]

[Text] New Delhi, Oct. 4—The Government has strongly denied a report published in a foreign weekly which alleged that India was inducting nuclear bombs into its Air Force and a special cell had been formed at the Air Headquarters for perfecting delivery techniques.

An official statement issued here said "this information is completely false and politically motivated. India does not possess nuclear weapons nor has intentions of making them. The Indian policy against proliferation of nuclear weapons is well known."

The report that appeared in DEFENCE AND FOREIGN AFFAIRS WEEKLY in London alleged that the Defence Research and Development Organisation approached the IAF tentatively in 1987 for studying low level bombing techniques and various types of aircraft for using Fuel Air Explosive bomb. However the article alleged that DRDO scientists admitted to the IAF personnel that they were actually working on the problem of delivery of tactical nuclear bombs as a result of the delays in the missile programme.

The article went on to say that the project was so secret that the IAF chief, then Air chief Marshall D. A. LaFontaine was not trusted with the secret and Air Marshal M. M. Singh was superseded so as to have a trusted Air Chief. Since then the new Air Chief set up a special cell to study and operationalise nuclear bomb delivery techniques in coordination with the Atomic Energy Commission and the DRDO. The article even mentioned the squadrons of Mig-23s and Mig 27s and the location of their bases identified for the task.

The article written with considerable skill is actually an act of disinformation for purposes not yet clear, but with an obvious intention of embarrassing India. In fact, the DRDO is not known to be involved in the nuclear field (except nuclear medicine). Even the Indian peaceful nuclear explosion in 1974 was carried out by the Department of Atomic Energy.

FAE bombs: The DRDO through its labs has worked on the Fuel Air Explosives field. FAE bombs use ethylene oxide or propylene oxide gases which are detonated causing greater destruction than say, TNT. The on-going DRDO project on FAE bombs began with a feasibility study in 1978 and though a project was sanctioned in 1986, there is reliable information that the project is facing difficulties over the problem of achieving the adequate gaseous dispersion for the required explosive effect.

Official sources confirmed that while the squadrons named in the report were indeed based in Rajasthan and flew the aircraft named, the information was hardly secret. However they stated that the allegation that the IAF had been asked to take charge of a tactical nuclear

delivery programme because of delays in the missile programme was false, as the tactical missile programme was fully on schedule as proved by the test launch of the Prithvi tactical missile system in February this year.

Even hypothetically assuming that India had a tactical bomb, it was far more likely to be used through a missile rather than a Mig-23 type aircraft since the aircraft was not very capable of penetrating hostile air defences.

A spate of recent reports devoid of substance and carried in western publications focussing on Indian defence programmes, have led some observers to suggest that a concerted move is being made to prevent the emerging programme of cooperation India has managed to establish with the U.S. in recent years. The tenor and substance of the reports was to show that India had close links with the Soviets and was a threat to America's friends and allies in the South, South-East Asian region.

Significance of Pakistan Nuclear Developments Described

51500027 Calcutta *THE TELEGRAPH* in English
4 Oct 88 p 3

[Article: "New Pak Method To Detect Uranium"]

[Text] New Delhi, Oct. 3 (UNI)—Pakistan has reportedly developed a new technique for exploring uranium and thorium based on the detection of radioactive gases like radon and thoron, produced during the decaying process of the two nuclear materials.

The breakthrough has been achieved by a research group of the Pakistan Institute of Nuclear Science and Technology (Pinstech).

While details are not mentioned, the cost-effectiveness of the new process vis-a-vis the conventional direct drilling method is said to be its most vital asset.

The breakthrough assumes additional significance in view of Pakistan's nuclear weapons programme. Pakistan is said to have large deposits of uranium and thorium.

The new technique, it is claimed, drastically reduces the cost of investigation point to about Rs 5 and initial investment required now is about Rs 30,000. One drill hole employing the conventional method, costs around Rs 1 lakh. Besides it also requires sophisticated equipment.

The new technique is being considered a shot-in-the-arm for the Pakistan Atomic Energy Commission, engaged in an extensive uranium exploration and mining programme.

Pakistan is among the few countries who have the capability to explore, mine, refine and upgrade uranium to certain specifications for different purposes.

Pakistan has been consistently trying to back up indigenous attempts with efforts to acquire technology from the West. Recent reports said Pakistan had, of late, been seeking technology for producing thermonuclear weapons.

This assessment was based on reports that Islamabad was understood to have approached France for obtaining tritium, an element used to increase the power of nuclear warheads.

Pakistan's nuclear programme has emerged as a major irritant in Indo-Pak relations in the past decade or so. Reportedly helped by China and with alleged smuggled nuclear components, Pakistan is said to have made significant headway in its quest for nuclear capability.

Madras Reactor Shut Down To Investigate Leak
51500025 Bombay THE TIMES OF INDIA in English
27 Sep 88 p 15

[Text] Bombay, September 26—The second unit of the Madras Atomic Power Station (MAPS-2), which has been in commercial operation since March 1986, has been shut down for investigation into a heavy water leak in the calandria vault.

An official statement today said the source of the leak is located in an inaccessible and high radiation field area requiring special tools for detection and corrective action.

Results of the tests carried out so far indicate the possibility of a leak from the calandria. More detailed analysis using eddy current, acoustic emission and vibration tests is presently in progress to pinpoint the exact leak spot.

After this it will be necessary to stop the leak so that the unit restart as early as possible. The exact time required for the rectification can be determined after the leak spot is identified, the statement said.

The present heavy water leak is entirely contained within the calandria vault of the reactor building and does not pose any radiation hazard either to the personnel or to the public, the statement added.

The statement further stated that the MAPS unit 1 is steadily operating at about 225 MWe and the performance has been excellent for the past six months with the monthly capacity usage exceeding 80 per cent.

Nuclear Power Corporation To Set Up 10 More Reactors

51500028 Bombay THE TIMES OF INDIA in English
2 Oct 88 p 10

[Article: "10 More Nuclear Power Projects"]

[Text] Bombay, October 1—Ten more nuclear power reactors, four of 235 MW and six of 500 MW capacity, will be set up as per Central government's funds approval received by the Nuclear Power Corporation (NPC) raising India's nuclear power capacity to 7,000 MW, said Mr S. L. Kati, NPC managing director. He said NPC had geared itself to speedily achieve the target of 10,000 MW nuclear power generation by the turn of the century through measures like greater mechanisation of erection and placing in advance batch orders for critical equipment.

He was speaking at a ceremony at the Powai Works of Larsen & Toubro on Friday where L&T handed over to NPC two reactor end shield assemblies for the Rajasthan Atomic Power Project III. The relevant documents were presented to Mr Kati by Mr D. L. Pradham, L&T's vice-president (Operations).

L&T Equipment

Mr Kati complimented L&T on its record of supporting India's nuclear power development through the manufacture of critical equipment like end shields and calandria. He noted that L&T kept pace with the changing requirements dictated by upgradation of technology and which called for greater sophistication in manufacturing. He hoped that L&T, with its facilities at Powai and Hazira, would contribute even more to the nuclear power development than hitherto.

Mr Pradham felicitated NPC for its successful completion of the first year of its operations. He said that L&T was fully geared to meet the challenges of supplying equipment for the 500 MW nuclear power projects which are on the anvil and pledged full support for achieving NPC's targets. Mr A. M. Naik, general manager, L&T, proposed a vote of thanks.

Presently, L and T is fabricating two pairs of end shields for 500 MW projects, end shields for Kaiga power project and primary heat exchangers such as moderator heat exchangers, standby coolers, bleed coolers, bleed condensers and steam generator components.

End shield is a complex piece of equipment weighing 70 tonnes and measuring 7.5 M across. It acts as a thermal radiation shield to the reactor and as a channel for nuclear fuel and coolant heavy water. Since in an operating nuclear power plant many operations of fuelling, etc., have to be carried out almost on a continuous basis, involving end shield interface and automatic machines, end shield has to be an ultra high precision equipment. The fabrication process proceeds in many steps and stringent controls have to be effected at every step so as to achieve final critical quality requirements.

Andhra Pradesh, Delhi Agree on Nuclear Power Plant

51500030 Calcutta THE TELEGRAPH in English
16 Oct 88 p 4

[Article: "AP Govt, Centre Agree on N-Plant"]

[Text] Hyderabad, Oct. 15—With the state government and the Centre in accord for once, the proposal to set up a nuclear power plant at Nagarjunasagar, the world's largest masonry dam, is likely to be approved despite a massive public campaign against its location.

The chairman of the Atomic Energy Commission (AEC), Dr M. R. Srinivasan, made it clear that he considered Nagarjunasagar an ideal site because of its "natural features."

He told newsmen here that a decision on the Andhra Pradesh project and three others would be finalised next year. The government planned to take up four projects at a time to meet its nuclear power target and each would have 500-MW reactors.

Simultaneously, the Andhra Pradesh minister for power, Mr Raji Reddy, announced that the state government had submitted its proposal for the Nagarjunasagar project outlining six conditions. He did not specify the conditions.

Mr Srinivasan's statement brought immediate reaction from the Anti-reactor Action Committee which has spearheaded a vigorous campaign across the state. Saying the Centre had absolutely no regard for public opinion, a Committee spokesman, Prof. T. Shivaji Rao, criticised the AEC for misleading people on safety aspects of the project.

A major objection of the environmentalists is that the location of the project at Nagarjunasagar violated a fundamental guideline of the Vengurlekar Committee which says there should be no town with 10,000 or more people within a 17-km radius. Nagarjunasagar has within a 10-km radius, 40,000 people living at Vijaypuri. The dam will also face serious pollution problems from radioactive wastes.

For many the plan to discharge toxic effluents from the nuclear plant into the left bank is the most disturbing feature of the proposed projects which has evoked the biggest and most sustained public campaign in the state.

Nagarjunasagar, described as Andhra Pradesh's crucial artery, irrigates about 15 lakh hectares of which 4.2 lakh hectares is watered by the left bank. Flowing through three districts the canal brings hope to farmers in 500 villages.

Fuelling public misgivings over the project is the AEC's failure to hold a public debate on the safety factors that it had promised more than a year ago. Environmentalists contend that the plant will discharge about 3,000 gallons of hot condenser water at a temperature higher than the river water resulting in a hazardous environment for both marine life and the human population.

Yesterday, Prof Shivaji Rao pointed out that Andhra Pradesh would add just four per cent to its present power generation while setting up the biggest potential for disaster at Nagarjunasagar.

2 New Nuclear Power Plants To Be Built in Tarapur

51500029 Bombay THE TIMES OF INDIA in English
18 Oct 88 pp 1, 3

[Article by S. Kumar and Darryl D'Monte: "Tarapur To Have 2 New N-Plants"]

[Text] Bombay, October 17—The Union cabinet has cleared the sites for the location of new nuclear power plants in the country. They will be installed at the existing sites—Tarapur in Maharashtra, Rawatbhatta in Rajasthan and Kaiga in Karnataka.

Tarapur will have two units of 500 MW each, Rawatbhatta four of 500 MW each, Rawatbhatta four of 500 MW each of Kaiga four of 235 MW. However, two 1,000 MW units to be imported from the Soviet Union will be installed at Koodankulam near Kanyakumari in Tamil Nadu.

The 500 MW units are being designed indigenously for the first time.

After construction of these units in the next ten to 12 years, Rajasthan will have at the same site a total of eight units (2,940 MW), Kaiga will have a total of six units (1,410 MW) and Tarapur, four units (1470).

Though the government had earlier given sanction for advance procurement of critical components for the proposed plants, the sites chosen about four years ago have only now been cleared. Unlike in the past, the DAE had to satisfy the queries of the Union ministry of environment before obtaining the cabinet approval.

Dr M. R. Srinivasan, chairman of the Atomic Energy Commission and secretary to the DAE, told THE TIMES OF INDIA here today that the health physics and safety aspects were sufficiently examined by the department's own experts before selecting the site and subsequently, the concurrence of the department, of environment was obtained. In future, a representative of the environment department would be included in the site selection committee.

Asked why a public inquiry was not being held as in the United Kingdom before choosing a site for a nuclear plant, Dr Srinivasan replied that there was not need for such an inquiry. The existing procedure, where the environment department took care of public safety, offered sufficient safeguards, he said.

Countering the common perception that more nuclear power units at one place would aggravate the radiation problem, Dr Srinivasan said each unit would have its own containment facilities. It would be a cluster of self-contained modules. He defended the decision of clustering the units as they would considerably bring down the time taken for constructing new units, help in optimal utilisation of the infrastructure and above all, emergency situations could be handled better.

He cited the example of France, Japan and Soviet Union where each nuclear power station had four or eight units. The installed capacity at a single location ranged from 4,000 MW to 8,000 MW in those countries while India would have 2,000 to 4,000 MW capacity at one station.

Dr Srinivasan described the cabinet clearance as a "landmark decision" since never before had the government cleared at one time 12 units with a total capacity of 6,000 MW. Detailed engineering project proposals were being formulated regarding the new plants and they were slated to be completed before 2000 A.D. Next year, another batch of nuclear power plants would be proposed for government sanction.

At Tarapur and Rajasthan, only a small portion of land would have to be acquired while in Kaiga adequate land had already been acquired for installing the new units. Tarapur can accommodate only two units of 500 MW. For this about 250 hectares of land would be acquired. In

this process about 4,000 people, belonging to over 600 families would have to be rehabilitated. The NPC was in touch with the state government in this regard, Dr Srinivasan added. The state environment department had suggested a rehabilitation package and this was under the consideration of the NPC.

The existing units of Tarapur have been "derated" to generate only 165 MW each instead of 235 MW because of shortage of nuclear fuel, hazardous leaks and other snags. Dr Srinivasan said these units would be run as long as they were declared safe. Recent assessment showed that the health of the TAPS units was good, he maintained. Under the Indo-U.S. agreement, the fuel supply was to continue till 1993. Now, France is supplying the enriched uranium and it will do so till 1993. Later, indigenous mixed oxide fuel could be used, failing which the fuel would be obtained from some other source. "We will decommission the plants only if declared unsafe," Dr Srinivasan said.

Regarding the Soviet plants, Dr Srinivasan said an agreement would be signed next month during the visit of the Soviet president, Mr Mikhail Gorbachov. The Soviet Union would take back the spent fuel.

The spent fuel would not be subjected to the mandatory international inspection. The International Atomic Energy Agency had waived the inspection clause as had been done in the case of Spain earlier. The plant would, however, be subject to IAEA inspection as in the case of Rajasthan plants which used heavy water supplied by the Soviet Union.

Meanwhile, Mr P. Abraham, secretary to the department of environment, government of Maharashtra, today said the NPC had made an application for expanding TAPS units a month ago and "the matter was still under consideration". Other sites under consideration for nuclear plants in Maharashtra are Ratnagiri and Ujjani, near Solapur.

Mr Abraham confirmed that like any other major industrial or energy project, TAPS expansion had come for environmental clearance to the state government.

He also added that the decision to almost double the capacity of TAPS was quite independent of his department's decision to give the Bombay Suburban Electric Supply Ltd. (BSES) the permission to build a 500 MW thermal station at Dahanu, only 20 km south of Tarapur.

Some youths from a few villages near TAPS have expressed their opposition to the expansion of the plant.

Mr Aruni Patil, an engineer from Bombay, many of whose relatives live in these villages, told this paper that the local people, particularly youths, have local people, particularly youths, have started realising the hazards of staying near nuclear power plants.

They were not aware of it earlier, but after the emergency drill held in these villages on October 8, the awareness has increased, he said, adding that the villagers would oppose the expansion.

A team of Gujarat officials visited these villages on October 8, to ascertain how the people had reacted to the drill since a similar plant was being considered in Gujarat.

The team met with angry reactions from the villagers in Pofran. They complained that they did not get permanent jobs in TAPS and were temporarily employed for the last many years.

PAKISTAN

UK Paper's Claim of Nuclear Help to Iran Denied
BK3011153488 Islamabad Domestic Service
in Urdu 1500 GMT 30 Nov 88

[Text] A Foreign Office spokesman has rejected the report of a British daily alleging that Pakistan is assisting Iran in the establishment of an atomic center at Kazmin. The spokesman described this report as totally baseless and mischievous.

UN Approves Proposal for Nonnuclear South Asia
BK0912090688 Islamabad Overseas Service
in English 0800 GMT 9 Dec 88

[Text] The UN General Assembly has approved with an overwhelming majority the Pakistani proposal for a nuclear weapon-free zone in South Asia and for the strengthening of security guarantees to nonnuclear-weapon states. This is the 15th time the General Assembly affirmed its endorsement in principle on the concept of a nuclear weapon-free zone in South Asia. The vote was 116 to 2 with 34 abstentions, making the tally the highest ever.

The resolution on strengthening of security guarantees to nonnuclear weapon states was approved by a vote of 152 with none against it.

Air Marshal Sees Need for Nuclear Deterrent
46000028z Karachi DAWN in English 4 Nov 88 p 9

[Article by Air Chief Marshal Anwar Shainim, retired]

[Text] There appears no immediate likelihood of the threat from India subsiding in the least. If the propaganda campaign launched by India in recent years accusing Pakistan of assisting the Khalistan Movement of the Indian Punjabis, being engaged on a nuclear programme with military capability, acquiring sophisticated weaponry particularly from the USA and India's nibbling at Pakistan's territory such as in Siachen are any indicators, the Indian designs are directed towards Pakistan's annihilation. Displaying considerable patience and accommodation, Pakistan has made successive conciliatory moves, including late President Zia's "peace offensive," but India's response has generally been negative. Pakistan's long-term defence preparations have, therefore, of necessity to be geared to meet the Indian threat.

India possesses the third largest conventional armed forces in the world after those of the two superpowers. Besides exploding a nuclear device of its own in 1974, India has recently acquired nuclear submarines from the Soviet Union and is constantly on the look out to add more teeth to its military machine.

India's hegemonistic designs and regional superpower ambitions are no secret. Ideally, it would like to redraw the map of India to incorporate Bangladesh, Pakistan as well as perhaps Burma. However, with the passage of time these states have developed characteristics of distinct nationhood and India may find it difficult to absorb them. Adopting a pragmatic line, therefore, its aim would be to reduce these countries to the status of client states. It is doubtful whether any Pakistani, or for that matter Bangladeshi or Burmese, would willingly accept his country to be placed in such a situation. As Pakistan has always remained India's primary target for aggression, it has no choice but to prepare for a grim, determined struggle to resist any such Indian attempt so that its national independence and territorial integrity are safeguarded. Pakistan's present conventional armed forces are hardly a match for their Indian counterpart, either in number or in fire-power. No amount of acquisition of sophisticated weaponry either through cash purchases or foreign assistance can bridge the gap in this sphere. It must, therefore, possess a suitable deterrent which would make India think ten times before embarking on a military adventure against Pakistan. Such a deterrent, to be credible, must be an appropriate mix of the nuclear and conventional forces.

Weapon-grade nuclear capability may be difficult to acquire, because of the lack of technical know-how, which is often withheld on political ground, even by the so-called friends. It is also expensive while still in the research and development phase. Once, however, such a capability is developed, building up of sufficiently strong nuclear forces to act as a bulwark against Indian designs need not necessarily be an expensive affair. Also, contrary to the common belief, no special aircraft is needed to deliver nuclear weapons and evolution of a suitable delivery system for nuclear weapons does not pose a serious problem.

Once a nuclear deterrent has been obtained, it should not be necessary to maintain such large armed forces as Pakistan plans to raise to provide an answer to the Indian threat. Such an arms race is neither feasible nor winnable for a small, resource-deficient country like Pakistan. The organisation and administration of the armed forces, in any case, needs to be reviewed drastically to cut expenditures as also to put them to productive employment in peace-time which should incorporate elements of their training for war. The following points may be considered in this regard:

(a) The armed forces should be composed mainly of small, highly mobile battle groups. Cumbersome headquarters concerned with repetitive administrative detail should be curtailed to the minimum;

(b) Standardisation of equipment, particularly of the non-operational nature such as vehicles and ordnance stores must be insisted upon. Joint Services Headquarters should be assigned greater responsibility and authority for this purpose.

(c) Support services should mainly be provided by retired persons, re-employed in civilian capacity and/or by conscriptees. If necessary, a compulsory national service for two years after matriculation should be introduced, which would raise an enormous war reserve;

(d) Non-operational expenditure such as on transfers, particularly of those posted in depots and workshops should be kept to the minimum. Promotions in non-commissioned ranks should be made on time-scale so that they do not have to shift from place to place on promotion;

(e) Unnecessary expenditure on ceremonials and uniforms etc. should be done away with;

(f) Institution of men in uniform employed as batmen to army officers and JCOs should be abolished. Such a measure would immediately add two infantry division operational strength to the army. If the proposed measure is likely to cause a morale question, the affected officers and JCOs may be given cash allowance in lieu.

Strengthening of political friendships is essential besides acquiring a credible military deterrent. Relations with both the superpowers must be kept at their best. Traditional friendship with China and the Muslim world must be reinforced at all levels. With the adoption of a principled stand, sympathy of non-aligned nations must always be enlisted. An effective role in the SAARC (South Asian Association for Regional Cooperation) is also vital. Diplomatic skills must be refined and exercised effectively. Defence and foreign policies go hand in hand. Greater coordination between the two concerned departments is, therefore, essential for the evolution of practical plans and policies.

Pakistani nation is to be indoctrinated as to the need for positive thinking and action for its very survival. The indoctrination must begin almost in the cradle and should be an integral part of education. It must also be preached in mosques, offices, factories and agricultural fields. We should know that if we resolve to stay free and are prepared to die for truth and honour, with God's blessings, no aggressor can deprive us of our sovereignty.

New Round of Nuclear Nonproliferation Talks

Secretary Shultz Cited

LD1312071388 Moscow TASS International Service
in Russian 2120 GMT 12 Dec 88

[Text] Washington, 13 Dec (TASS)—The twelfth round of Soviet-U.S. consultations on problems of the nonproliferation of nuclear weapons began here on Monday. The Soviet delegation is headed by Boris Semenov, first deputy chairman of the USSR State Committee for Atomic Energy, and the U.S. delegation by Ambassador-at-large Richard Kennedy. U.S. State Department spokesman Charles Redman reported that the Soviet delegation was today welcomed by U.S. Secretary of State George Shultz. "The secretary of state began by expressing condolences to the Soviet people over the huge tragedy that struck Armenia," Redman said. "He then noted the importance of the nonproliferation of nuclear weapons and highly assessed the continuing cooperation between the United States and the USSR in strengthening the regime of nonproliferation." In particular, the State Department spokesman said, Shultz noted the efforts aimed at strengthening the nuclear nonproliferation treaty, the measures being taken to strengthen security in the International Atomic Energy Agency (IAEA), improvements in monitoring the export of nuclear technology, and solving problems "that give rise to anxiety on a regional level."

Problem 'Especially Acute'

LD1312204388 Moscow TASS in English
2000 GMT 13 Dec 88

[By TASS military writer Vladimir Bogachev]

[Text] Moscow December 13 TASS—The 12th round of Soviet-American consultations on the non-proliferation of nuclear weapons opened in Washington on December 12.

During the talks the sides will consider the entire range of problems related to strengthening the regime of the treaty of non-proliferation of nuclear weapons, under which over 130 states, signatories of this agreement, committed not to transfer this weapon or other nuclear explosive devices to anyone, and states which do not possess nuclear weapons undertook not to produce and not to acquire such means of warfare.

In their joint statement at the summit meeting in Moscow Mikhail Gorbachev and Ronald Reagan are known to have spoken highly of the non-proliferation treaty, and confirmed their belief that joining of the treaty by all states of the world would raise a chance to achieve progress in reducing nuclear armaments and scale down the threat of a nuclear war.

It is not fortuitous that the leaders of the two countries pay attention to the problem of non-proliferation. It has grown especially acute lately. An increasingly larger number of states, which have the scientific and technical capacity to develop their own nuclear weapons, seek membership in the "nuclear club." Among them are the

Republic of South Africa, Israel, and Pakistan. But once nuclear weapons are deployed in these countries, the military-political situation in Africa, in the Near and Middle East would be sharply destabilized and the menace of a world nuclear war would be enhanced. The agenda of the consultations will evidently feature specific regional problems of non-proliferation, which are the cause of concern for the sides, and also measures to enhance the role and authority of the international atomic energy agency.

The fourth conference to review the fulfillment of the provisions of the non-proliferation treaty will take place in Geneva in 1990. The Soviet side attaches particular importance to preparations for this forum and will present its proposals on this issue.

The non-proliferation treaty is not an isolated agreement which is separated from other agreements and negotiations on disarmament. The treaty of the non-proliferation of nuclear weapons itself commits each state which signed it to conduct in the spirit of good will talks on effective measures to stop the nuclear arms race, and also on concluding a treaty on universal and total disarmament with stringent and effective verification.

The non-proliferation treaty has had a positive impact on the entire process of arms control. In its turn, the solution of such important problems of international security, as banning globally and totally nuclear weapon tests, reducing strategic offensive armaments by 50 per cent provided that the treaty on the limitation of anti-ballistic missile systems is honoured, and eliminating chemical weapons will undoubtedly strengthen the non-proliferation regime.

In the Soviet Union they express the hope that the consultations in Washington will promote mutual understanding between the two countries on all issues under discussion. This will ensure good preconditions for a successful holding of the conference to review the non-proliferation treaty in Geneva as well as promote progress at other Soviet-American arms control negotiations.

Official Advocates Nuclear Cooperation With FRG

AU1412161588 Hamburg DIE WELT in German
14 Dec 88 p 1

[Heinz Heck: "Moscow Wants To Restrict the Development of Nuclear Power; Increased Cooperation With German Firms"]

[Text] Bergisch Gladbach—The Soviet Union wants to reduce its ambitious nuclear power development program after the reactor accident at Chernobyl. However, the basic attitude toward nuclear power has not changed. This was stated by Aleksandr N. Protsenko, chairman of the USSR State Committee for the Utilization of Nuclear Energy, at a news conference in the Siemens subsidiary Interatom.

In the development of high-temperature reactors and the safety of nuclear power plants, Moscow pins its hopes on increased scientific-technological cooperation with the

FRG. As recently as October, two German enterprises concluded a general contract on cooperation in the planning and construction of high-temperature reactors.

According to Protsenko, the power supply in the Armenian earthquake area is presently being maintained only by the Oskemberyan nuclear power plant, since one of the country's biggest oil power plants broke down because of the earthquake.

Until Chernobyl, Moscow had planned to extend the nuclear power capacity to approximately 150,000 megawatts (five times as much as in 1985) by the year 2000. The program is being revised and the new plans will be presented soon, he said. Apparently, the Soviet Union has difficulties in choosing sites. Since the accident, neither a new site has been determined nor a new project started.

The Soviet Union is greatly interested in the modular design high-temperature reactor. "Dozens, even hundreds of them" could be installed. "However, we will also build the conventional pressurized water reactor in the future. Only the Chernobyl type will no longer be built."

Many questions are still open concerning cooperation with German firms. An agreement is hoped to be reached after 2 or 3 months. By the turn of the century, modular design high-temperature reactors with a smaller capacity (together approximately 250 megawatts) are to be built; then the importance of this type will be determined. For reasons of foreign exchange alone, Moscow is interested in accomplishing as much as possible itself with the high-temperature reactors that are planned for use in Siberia as well as in other East Bloc countries.

Velikhov on Post-Chernobyl Nuclear Policy
OW0912150488 Tokyo NHK General Television
Network in Japanese 1038 GMT 9 Dec 88

[From the "News Today" program; interview with Yevgeniy Velikhov, vice president of the Soviet Academy of Sciences, by NHK newscaster Hirano, at the NHK studio on 9 December—recorded; interview conducted in English with Japanese subtitles]

[Text] Two years and 8 months have passed since the accident at the Chernobyl nuclear power station in the Soviet Union. According to the announcement made by the Soviet Government, a total of 31 persons were killed and 203 other victims were hospitalized. Reportedly, the accident was caused by an unauthorized experiment conducted by staff members. It was Dr Velikhov, vice president of the USSR Academy of Sciences, who took full command of handling the aftermath of the accident. Dr Velikhov and other personnel evacuated the residents living in the neighborhood of the power station and tried to prevent the increase of radioactivity by pouring concrete into the exploded nuclear reactor. At present, the investigation into radioactive pollution is still under way in the neighborhood of Chernobyl.

Dr Velikhov is currently visiting Japan. We invited him to the "News Today" studio and interviewed him on such topics as the changes in Soviet nuclear policy since the Chernobyl accident.

[Video shows Velikhov sitting at a table facing newscaster Hirano]

[Begin recording] [Hirano] What is the present status of that nuclear power station there?

[Velikhov] We finished the cleaning work on the station, and today the three blocks are working and producing electricity and the fourth block is encapsulated in confinement, and expedition of our institute continues to work inside this block. It is much cleaner, quite clean and safe inside this block. And we studied all the details of this accident. I just returned 1 month ago from the fourth block. In a 30-km zone we have no people living, almost none. In some regions that are quite clean, it is possible to return for people, but generally there are no people.

[Hirano] Well, I wonder if you could be a little bit more specific about the impact the accident gave to the leadership and the government concerning nuclear policy?

[Velikhov] After Chernobyl, we changed this responsibility to the special body of the Ministry of Nuclear Power. We changed everything from management, operations, and education, and this is one of the very important lessons from Chernobyl.

[Hirano] We understand that you have decided not to install the same type of nuclear plant in the future...

[Velikhov, interrupting] Yes. Yes.

[Hirano] ...That's an RBMK.

[Velikhov] Yes. We stopped producing and building new RBMK reactors. Yes. We need nuclear energy for our production of electricity. We put into consideration everything—natural gas, oil, coal, energy efficiency, energy conservation—but, if we calculate everything, we need nuclear. In such case, we have a big discussion how to proceed with nuclear in a safe way. In some way, before Chernobyl it was some euphoria in the circle of people who are in charge of energy production, and in the population. And many local authorities asked the government to build more nuclear stations then. And it was, I think, too fast movement. And Chernobyl was one result of this. Today, we have a slowdown that costs us maybe 5 years' slowdown in nuclear energy, but our goal is the same. In the future, of course, we need to more carefully consider all the problems—seismicity, seismic situation, the problems of location in the population center, underground water condition—all together with economics, and have many more discussions, especially with the local population.

[Hirano] Well, recently a very strong earthquake took place in some parts of your country in the Republic of Armenia. Do you think that kind of earthquake might destroy the power plant, the nuclear power plant located in that area?

[Veliknov] No. From your information... [changes thought] I do not have complete information. But, if it is like the 7.0 magnitude on the Richter scale, of course it is possible to build a completely safe nuclear power plant that will withstand an earthquake of that magnitude. The only condition is to design for the proper conditions. [end recording]

In fact, there is a nuclear power station in Yerevan, the capital of the Armenian Republic, where an earthquake of 6.9 magnitude took place the day before yesterday. As for this earthquake, Moscow radio reported on 8 December that Foreign Minister Shevardnadze stated in his news conference held in New York that there was no damage to the nuclear power station.

IAEA Experts Inspect Ukrainian Rovno AES
PM1212152388 Moscow IZVESTIYA (Morning Edition) in Russian 11 Dec 88 p 2

[Article by N. Baklanov: "AES Safety Test"]

[Text] A group of IAEA experts on questions of operational safety (from OSART) has arrived at the Rovno AES.

According to reports in Ukrainian Republic newspapers, in line with their program the group will be studying the organization of cadre management and training and the power plant's operational indicators, and will be checking the correctness of the methods it is planned to employ there to prevent and eliminate anomalies, including accidents.

The OSART group, which is carrying out similar missions to nuclear power plants in other countries, has come to the Rovno AES at the Soviet side's invitation.

AUSTRIA

Negotiations on Nuclear Safety Accord With CSSR

AU0312163088 Vienna WIENER ZEITUNG
in German 3 Dec 88 p 2

[Text] Yesterday Austrian-CSSR negotiations on a new agreement on nuclear safety and radiation protection were successfully concluded in Vienna. The new agreement, which is to replace the 1984 agreement on nuclear power plants, expands the existing possibilities for information about—and checks on—all nuclear power plants, including how they temporarily store waste, their final storage, and other matters. This applies to the entire national territory.

While the most important stipulations of the 1984 agreement were applicable to only the CSSR nuclear power plant of Dukovany, the new agreement directly applies to Temelin, Mochovce, and Jaslovské Bohunice. In addition, the new agreement contains a number of further improvements over the current regulations.

The Austrian delegation to the negotiations was headed by Envoy Zeileissen of the Foreign Ministry; the CSSR delegation was headed by Stanislav Havel, chairman of the CSSR Atomic Energy Commission.

FEDERAL REPUBLIC OF GERMANY

Ministerial Complicity in Illegal Material Shipments Charged

51002408 Hamburg DER SPIEGEL in German
17 Oct 88 pp 22-26

[Unattributed article: "Nuclear Exports—Continued Concerns"]

[Text] For years the Duesseldorf firm Hempel has supplied such countries as India, South Africa, and Argentina with nuclear materials. The responsible Ministry of Economics in Bonn failed to intervene.

Manfred Langner, legal advisor of the CDU/CSU faction and chairman of the Bonn Nuclear Investigatory Committee, triumphantly brandished a letter from the American embassy which the Christian Democrat had received by way of the Foreign Office just in time.

For last Thursday an American law professor, Gary Milhollin, from the University of Wisconsin, appeared as an expert witness. This nuclear arms control expert maintained that the FRG had "violated the treaty banning nuclear arms" and that illegal nuclear transports from German merchants and shippers were "not prosecuted" and thus sanctioned by German authorities.

"An incredible charge," indignantly objected Christian Democrat Langner who quoted as proof to the contrary from a U.S. Embassy diplomatic dispatch in which Edward M. Malloy, embassy counselor for science and technology, stated that Americans had "no knowledge of

diversions of nuclear materials from the Federal Republic," nor of any "scheme" by which such illegal maneuvers could be accomplished—for Langner a welcome whitewash.

However, the handwritten marginal note, which the responsible Foreign Office official, Hartmut Blankenstein, had entered on the Malloy dispatch was suppressed by the CDU politician and for good reason.

This marginal note goes to the core of the matter. By no means are the Americans as satisfied as Langner would have us believe. Rather the opposite is true: Malloy had "emphasized orally"—and this was carefully noted by Blankenstein, his German colleague—that there "continued to be much concern."

The origin of this concern is only too well known to the Foreign Office. Washington has complained for years about German businessmen who make their money with nuclear transports to Third World countries. With their help, Washington charged, India, Argentina, South Africa, and probably also India's archenemy, Pakistan, have learned to manufacture the bomb.

America's concerns are justified. Numerous documents from German ministries, which have meanwhile been submitted to the nuclear committee, support the suspicion that in Bonn the letter and spirit of the nuclear arms ban treaty has been ignored. Apparently deliberately Bonn has allowed flagrant legal gaps to exist in German foreign trade laws—a "grey zone," according to SPD Representative Hartmut Soell, which leaves loopholes for clever nuclear merchants.

Only since parliamentarians started investigating, have executive offices also considered closing the gaps. However, the resulting damage to foreign policy is not erased therewith. On the contrary, daily the nuclear committee receives new evidence to reinforce an old suspicion. Explosive nuclear material, needed to make nuclear bombs, has apparently reached South Africa by ship by way of Shanghai with the help of German businessmen.

Bonn's assertions that it does not want to support the regime on the Cape and that it adheres to the internationally agreed upon embargo policy have been revealed as lip service. Deliveries have been made, even though in this case there were not even any gaps in the law. For years the UN Security Council has had a binding rule against supplying South Africa with arms or nuclear materials.

The more the delegates study the evidence, the more apparent the scope of this affair becomes. The investigative committee—established in January 1988 to investigate the shipping business of the Hanau nuclear firms of Alkem and Nukem and their former subsidiary, Transnuklear—seems to have struck oil, not in the nuclear swamp of Hanau but in the adjoining area of the international nuclear black market.

German authorities act more as promoters than as regulators in export affairs. This was the case for the Kiel Howaldtswerft, whose management was aware of the silent acquiescence of the office of the chancellor in the

dubious export of submarine blueprints to South Africa, and this is also the case with regard to the Duesseldorf nuclear merchant Alfred Hempel.

In the beginning of the seventies this merchant had already gained a monopoly in Moscow on the European nuclear trade. When German energy firms have their fuel elements enriched in the Soviet Union, Hempel will profit into the next century. The contacts with China are also functioning perfectly. In October 1984 Hempel approached Economic Minister Martin Bangemann with the idea that Germany could bury its used fuel rods in the Gobi Desert to get rid of its reprocessing problems. The minister encouraged Hempel. Partial "disposal of waste abroad" may have "a chance of being accomplished" read a notation.

Hempel's interests are also well served by Christoph Haase, Bangemann's senior official for foreign trade law and foreign trade affairs.

When, prompted by foreign inquiries, the federal intelligence service raised questions in 1982 about the German's dubious activities in the nuclear market place, Haase answered willingly that he had exported a total of 70.634 tons of heavy water from China—50 tons to Argentina and 20 tons to India—just between July and November 1982.

Heavy water (deuterium oxide, D₂O) serves as moderator in a type of reactor which can convert natural Uranium rapidly and without expensive enrichment into weapon-grade plutonium—the direct way to the bomb.

The fact that India and Argentina were enabled to produce nuclear weapons without outside help was not, however, challenged by the official. He only advised the secret service to use discretion. The excitement over "far-reaching and rather unconventional business relations" of the Hempel firm could [he stated] "also be due to professional rivalry."

The Duesseldorf heavy water dealer has had business relations since the seventies with those Third World Countries who seek to fortify their political ambitions with nuclear activities. Hempel's business dealings with India and Pakistan, for instance, were conducted through the Geneva firm of Adero-Chemie S.A., a "mailing address," the "purchase" of which Hempel had arranged "through dummies," according to the TAGES-ZEITUNG. India triggered its first nuclear explosion in 1974, and in 1983 the Indian heavy water reactor in Madras, which can also breed plutonium for bombs, started producing electric power.

In the beginning of the eighties Hempel also became active in South America. He shipped 40 tons of heavy water from China to Buenos Aires by way of Paris on an Air France machine to the lasting "regret" of the French Government.

It has now been revealed that the delivery of heavy water by a German caused the Americans particular concern. As early as the end of the seventies the administration of Democratic President Carter tried in vain to talk Bonn out of delivering a heavy water reactor to Argentina since

that country had not signed the nuclear nonproliferation treaty and was not willing to allow its nuclear activities to be scrutinized by the International Atomic Energy Organization.

Nothing happened when, in May 1981, the Americans conveyed their "serious concerns" over the pending heavy water deal and urgently requested "all possible aid for its prevention." Bonn took refuge behind the argument that the business is being handled by the Swiss firm of Orda which is "not under the jurisdiction of German export law."

This still seems to be the case today, notwithstanding the fact that an Economic Ministry notation of 21 July 1988 called the Orda firm "a Hempel subsidiary."

How convenient: Hempel always conducted his particularly dubious exports through the Swiss subsidiary branch. For instance, "two shipments—each of 30 tons of enriched uranium" to South Africa, as charged by the U.S. State Department. In this case, too, Bonn claimed to lack jurisdiction.

The Americans insisted and pointed out that the shipment itself was carried out by the Duesseldorf Transservice shipping firm, but this fact changed nothing. The Economic Ministry reported to the Foreign Office that one could merely "try to persuade the German shipper to give up his plan voluntarily."

The result was meager. An official in the economic department conferred with the shipper and noted: "The manager declared himself ready to keep me informed if the firm should be asked to accept such an order."

In December 1983 the Swiss address again proved itself as an elegant detour for shipping 13 tons of Norwegian heavy water to India. Hempel's German firm "Rohstoff-Einfuhr (Raw Material Imports) GmbH" provided Norwegian authorities with an International Import Certificate and was granted permission. In the certificate the merchant gave assurance that the goods would be shipped to Frankfurt. Actually the transport arrived in Basel—the Frankfurt deal had allegedly fallen through. There, wonder of wonders, the Orda firm came to the rescue and expedited the shipment to Bombay.

This manipulation, too, remained unchallenged. Only after Professor Milhollin made this diversion public did Economic Ministry officials think of a few excuses; for instance, when Dr Pott publicly maintained: "Our defense argumentation has...flaws."

Unfortunately, according to applicable law, a shipper could not be punished for not fulfilling the terms of the International Import Certificate. This was said to be a gap in the law which "one could not adequately explain to anybody," while the federal economic office, which issued the certificate, had apparently failed to "check" whether the terms were fulfilled.

The Economic Ministry, managed since 1972 by the Free Democrats, considers controls in any case to be an abomination; the laws of the market are more important. These laws know of no sanctions; they are shaped by supply and demand—liberalism, pure and simple.

Although interested parties sometimes surmised all the things Hempel was hiding in a closet, all suspicions remained without consequence. Prompted by the Americans, the Foreign Office attempted to have the Economic Ministry investigate the foreign trade of the Hempel group as early as 1981. State Secretary Dieter von Wuerzen supported it: "The best way to remove suspicion is to bring the facts into the open"—but nothing happened.

Two years later Hempel's "Rohstoff-Einfuhr" was subjected to a routine check by the main financial directorate in Duesseldorf. Two custom officials inspected the company's books on 2 November 1983; they were only interested in the period from "1 January 1982 to the time the examination began"—but by then the biggest deals had already been made.

The results were interesting, nevertheless. Even in the short time of 22 months the examiners registered 29 violations of foreign trade laws. The main financial directorate in Duesseldorf thereupon initiated proceedings to impose fines which came to a surprising end: "Because of the minor nature of the alleged infraction," the final decision stated, "no penalties will be imposed."

However, the matter was not supposed to be settled without any rebuke. Hempel was "instructed" by experts in the main financial directorate about the correct treatment of nuclear materials.

FINLAND

Country's 4 Nuclear Reactors Operate Without Safety Problems

51002406 Helsinki HELSINGIN SANOMAT in Finnish
5 Oct 88 p 16

[Article: "No Safety Problems in Nuclear Reactors"]

[Text] Finland's four nuclear reactors functioned fairly normally during the second quarter of the year. All the units were on line, nor did any incident substantially reduce the power plants' safety or generate radiation dangerous to the environment or the plants' workers, the quarterly report of the Radiation Safety Center reveals.

The output of Imatran Voima's Loviisa 1 was lowered three times during the observation period because of testing, because of reduced demand for electricity, and because an electrical transformer was changed. The output of Loviisa 2 was lowered six times, among other reasons, in order to correct leakage from a condenser and because of a regulator rod which had fallen to a lower level.

It was necessary to reduce the output of Teollisuuden Voima's reactors several times because of tests, but no incidents noteworthy in terms of safety came to light in the units.

Since the start of the year, altogether 9.1 terawatt-hours of electricity have been introduced into the national network by nuclear power. This amounts to 36 percent of the net production of Finland's electricity.

In connection with its 30th anniversary, the Radiation Safety Center on Tuesday published a book entitled "Radiation and Safety," the first comprehensive work by Finnish experts on radiation and nuclear safety. The book's authors are 31 experts from the Radiation Safety Center.

The book sprang from the accident at the Chernobyl nuclear power plant. According to Antti Vuorinen, director of the Radiation Safety Center, the book is a manual and basic work intended mostly for professionals, but the layman interested in radiation issues can also get some solid information from it.

Discussed in the 640-page book are, among other things, the use of radiation in medicine and industry, radioactive fallout and its effect on the environment, radiobiology in the light of recent research, and the effect of radiation from nuclear energy. The book has a glossary of more than 300 key terms pertaining to radiation.

At the end of 1986, there were about 400 nuclear power plants in use throughout the world, and roughly 140 plants were under construction. Loviisa 1 and 2, owned by Imatran Voima, operate in Finland, as do Teollisuuden Voima's two units in Olkiluoto on the Eurajoki.

Support for 5th Nuclear Power Plant Increases

51002409 Helsinki HELSINGIN SANOMAT in Finnish
29 Oct 88 p 14

[Article: "Opposition to Fifth Nuclear Power Plant Has Decreased: More Than Half Oppose Further Expansion of Nuclear Power"]

[Text] Opposition to a fifth nuclear power plant has declined somewhat. However, a clear majority (58 percent) of eligible Finnish voters oppose construction of a fifth nuclear power plant. Just slightly more than one-third (37 percent) approve construction of a new nuclear power plant.

The figures are from a HELSINGIN SANOMAT poll conducted in September. The same question was also posed last January. At the start of the year, the number of opponents was 10 percentage points higher and the number who supported further construction was 7 percentage points lower than this autumn.

Eighteen percent support further construction, 19 percent support it to some degree, 19 percent oppose it to some degree, and 39 percent oppose it period. Five percent are unable to give their opinion.

Supporters of a new nuclear power plant are found mostly among backers of the Conservative Party. More than half (55 percent) the members of the Conservative Party support construction of the power plant. In other parties, supporters of nuclear power are in a clear minority.

The opinions of supporters of the Social Democratic Party (SDP) and the Finnish People's Democratic League (SKDL) have changed the most. A new nuclear power plant is approved by 36 percent of SDP and 37

percent of SKDL supporters. At the start of the year, just one-quarter of left-wing party backers declared their support for further construction.

The majority of women oppose a new nuclear power plant. Two out of three women oppose it, but the opinions of men are more strongly split. Nuclear power is more ardently favored by men who are highly educated, earn good money, and back the Conservative Party.

The most rigorously opposed to further construction are retirees (60 percent) and 25-to-34-year-olds. According to Finnish Gallup, the younger generation is becoming more favorable to nuclear power than the rest of the population. Forty percent of those under 25 years of age approve construction of a fifth nuclear power plant. The number of supporters is greater than in any other age class.

Divided on Safety

Those polled were also asked whether they thought nuclear power plants are safe. People's views on the safety of nuclear power plants are split practically down the middle. One side (47 percent) rates nuclear power plants as safe, and the other side (50 percent) questions their safety.

Six percent consider nuclear power plants entirely safe, and 41 percent fairly safe. Thirty-three percent do not judge nuclear power plants to be particularly safe, and 17 percent do not find them safe in the slightest degree.

People's views on the safety of nuclear power plants have remained unchanged this year, but the attitude toward nuclear power plants has become more favorable over the last 10 years.

The same questions about the safety of nuclear power plants were asked in 1978, 1979, and 1987. Nuclear power plants are clearly thought to be safer than they were in 1979 and somewhat safer than they were in the spring of last year, one year after the Chernobyl nuclear power plant explosion and the radiation disaster that followed it.

This is how pollsters interpret the outcome: first, people's opinions on the safety of nuclear power plants have changed and, subsequently, the attitude toward construction of nuclear power plants has also become somewhat more favorable.

Finnish Gallup interviewed 1,470 Finns altogether during the 24-30 September period and asked them their opinions on current issues. The responses represent the viewpoints of eligible voters outside Ahvenanmaa.

Attitude Toward A 5th Nuclear Power Plant

The interviewees were asked: People have publicly expressed various ideas on how additional electricity should be generated in our country. How do you feel about construction of a fifth nuclear power plant in Finland? Do you support it or oppose it?

	January 1988 %	September 1988 %
Support it	13	18
Support it somewhat	17	19
Oppose it somewhat	22	19
Oppose it	46	39
Cannot say	3	5

Safety of Nuclear Power Plants

The interviewees were asked: When the use of nuclear power is discussed, special attention is focused on whether nuclear power is safe for the environment. It has also been suggested that the problems of preserving and transporting hazardous wastes that result from the operation of nuclear power plants have not yet been conclusively solved. What do you think about all these safety problems in general?

	1978 %	1979 %	1987 %	January 1988 %	September 1988 %
Entirely safe or fairly safe	43	34	40	48	47
Not particularly safe or not safe in the slightest degree	52	64	57	50	50
Cannot say	5	2	2	2	3

GREECE

Spokesman on Presence of Nuclear Arms
NC0312141888 Athens Domestic Service in Greek
1230 GMT 3 Dec 88

[Text] A small number of nuclear arms remain in Greece. Additional nuclear units will be deactivated at the end of 1988. This was stated by government spokesman Sotiris Kostopoulos in reply to a question on whether NATO is putting pressure on Greece to play a more active role in apportioning nuclear arms. It is well known, Kostopoulos added, that the Greek Government does not accept modernization of the nuclear arms still in our country. Greece participates in nuclear planning as part of the NATO nuclear planning group, where, at every meeting, we express our well-known positions, the government spokesman concluded.

SWITZERLAND

Energy Policy After End of Kaiseraugst Plant Plan

51002407 Frankfurt/Main FRANKFURTER
ALLEGEMEINE in German 11 Oct 88 p 5

[Article by Wolfram van den Wyenbergh: "A Fracture Test for Federalist Switzerland Averted?"]

[Text] Zurich, 10 October—For some it was the equivalent of capitulation by the constitutional state. For others it was an act of political and economic good sense. In the fall session just completed, both chambers of the Swiss parliament, by a large majority, voted finally to abandon the plan to build the country's sixth nuclear power plant near Kaiseraugst on the higher reaches of the Rhine above Basel. Behind the decision is the fear that implementing the plan against the resistance of the local region around Basel, resistance which was also supported by almost all parties and political authorities, would have led to a test which could tear apart the confederacy and its federalist system.

As part of the protests against the impending massing of nuclear power plants on French, German, and Swiss soil along the higher reaches of the Rhine and Upper Rhine, the Kaiseraugst construction site had already been occupied in 1975 for a period of several months. The opposition had forced further delays in the approval process and the start of construction by exhausting every legal means, with popular initiatives—which were unsuccessful—for changes in the legal and constitutional provisions about the use of nuclear power and with the demand for constantly new legal opinions and expert depositions on safety concerns. There was also a threat of "active resistance." Attempts to move to other locations in the cantons of Bern and Geneva were prevented there by parliamentary votes and plebiscites.

Any additional project was completely blocked under the impression of the reactor accident at Chernobyl. Since then two new popular initiatives are pending which are aimed at making Switzerland renounce nuclear energy,

or at least impose a moratorium on the construction of new nuclear power plants. Finally, people came to realize that even if construction were to begin immediately, the Kaiseraugst nuclear plant would start operation at the very earliest in the mid 1990's, but with antiquated technology and a preliminary deficit of 2.5 billion Swiss francs caused by the delays, it would scarcely be able to operate profitably.

With this in mind, leading politicians from the three civil government parties, in preliminary discussions in the spring with representative of the electrical industry and the new elected Minister of Energy and Transportation Ogi, prepared to abandon the Kaiseraugst nuclear plant. They do not want it to be interpreted either as "the start of getting out of nuclear energy," nor as capitulation in the face of the pressure and the obstruction of an opposition minority which is even determined to mobilize violent resistance. They are declaring that with this step, out of political and economic good sense, they want to contribute to an easing of the discussion that has been going on for years about the energy policy that Switzerland should follow and to clear the way for a new beginning. They see an acceptable political price for it in an "appropriate" restitution to the company responsible for Kaiseraugst. The federation is supposed to contribute 350 million Swiss francs to the costs for design, material, and financing, which have accumulated so far in the amount of 1.3 billion Swiss francs. Parliament will doubtless demand proof to justify this amount, if it is to approve it in the winter session. If at least 500,000 citizens demand it, there must even be a national referendum.

Future Energy Policy

In the hours long parliamentary debate, there were only tentative indications of which course Swiss energy policy should now follow and how the energy supply shortage which will result one day from abandoning Kaiseraugst is to be made up, if continuously rising demand grows beyond the generating capacity of existing hydroelectric and nuclear power plants. Today there is as much opposition to obtaining cheap nuclear electricity from France as to further expansion of hydroelectric power which is harmful to protection of the landscape. Through a constitutional amendment and a statute of implementation based on it, the federation wants to grant itself additional full authority to ensure supplies of energy and to enact laws for the thrifty and efficient use of energy.

But years could pass until parliament and the nation have decided these plans, which are controversial even now. So this year the Government in Bern wants to present a preferred plan for the better use and greater conservation of energy. Its effect on the way demand develops is intended to make clear to citizens the consequences of a vote on a moratorium on nuclear energy or even total renunciation, which they would have to make in a national referendum in the near future. Until then, "keeping the option of nuclear energy open," which the federal council and the civic parliamentary majority have endorsed, in spite of abandoning Kaiseraugst, is only a vain hope. The intention is to ensure that the five existing nuclear power plants remain in operation until they can perhaps be replaced later by new reactors equipped with better technology, that their continuing development and the training of the needed experts is

not neglected and finally, that the way remains open for the approval and the construction of additional nuclear power plants, in the event that a growing demand for electricity cannot be met in any other way.

That would presuppose that a political consensus on the subject could be reached. After the experience with Kaiseraugst, the concerned question has been raised in parliament and in the public whether abandoning the project does not represent a dangerous precedent. The question has been asked whether a country is still governable, whether major projects in the energy or transportation industry or national defense could still be carried out if a militant minority or the population of an affected region opposed them and were no longer willing to recognize democratically legitimated decisions or majority resolutions by the government, parliament and voters as binding on themselves? The Greens and extreme left-wing opponents of nuclear energy have already voiced their intention of applying the tactics that worked in the case of Kaiseraugst in future in order to block the option of nuclear energy and other large-scale technological projects.

By bare majorities, both chambers of parliament adopted for further study proposals that decisions of great political—or emotional—weight, including those about new nuclear installations, should be subject to a national referendum. Proponents expect from it a positive revaluation of direct democracy and a strengthening of a sense of community and feeling of civic responsibility. Opponents warn that the claim to leadership of the government and parliament will be undermined. At the same time, a practice of this kind could amount to unlawful overruling of minorities by the majority, where with a view to preserving the inner coherence of the confederacy it was a rule of prudence and solidarity to take these minorities into account. At the moment it is impossible to see which opinion will ultimately prevail.

TURKEY

Radiation Reported Around U.S. Bases

NC1612103988 Istanbul TERCUMAN in Turkish
7 Dec 88 p 7

[Text] Ankara, (National Press Agency)—It has been reported that the prime minister's office has instructed the Atomic Energy Establishment to check for radiation around U.S. bases in Turkey.

Noting that radiation checks will be carried out around the U.S. bases, which are said to be leaking radiation, Deputy Director of the Atomic Energy Establishment Gurcan Yulek said:

"According to the law which provided for setting up the Atomic Energy Establishment, we deal with ionizing radiation. However, we shall check for radiation around the bases which are said to be leaking radiation, as requested by the prime minister's office. We do not have the equipment to check for radiation at the present time, so we will have to acquire the necessary instruments. Our colleagues are trying to determine the kind of equipment we can acquire. We shall check for radiation when we get the equipment and inform the prime minister's office of our findings."

UNITED KINGDOM

Explosion at Nuclear Weapons Establishment
LD0212140388 London PRESS ASSOCIATION
in English 1304 GMT 2 Dec 88

[By Jonathan Chapman, PRESS ASSOCIATION]

[Text] An explosion shattered windows at the top secret atomic weapons establishment today.

A Ministry of Defence spokesman said there was a conventional explosion at the base in Burghfield, Berkshire, on a site where non-nuclear explosives were routinely destroyed.

No one was hurt and there was no radiation danger.

"There was no hazard to the public or personnel at any time," she said. Burghfield is believed to handle warheads for weapons such as Trident and Polaris.

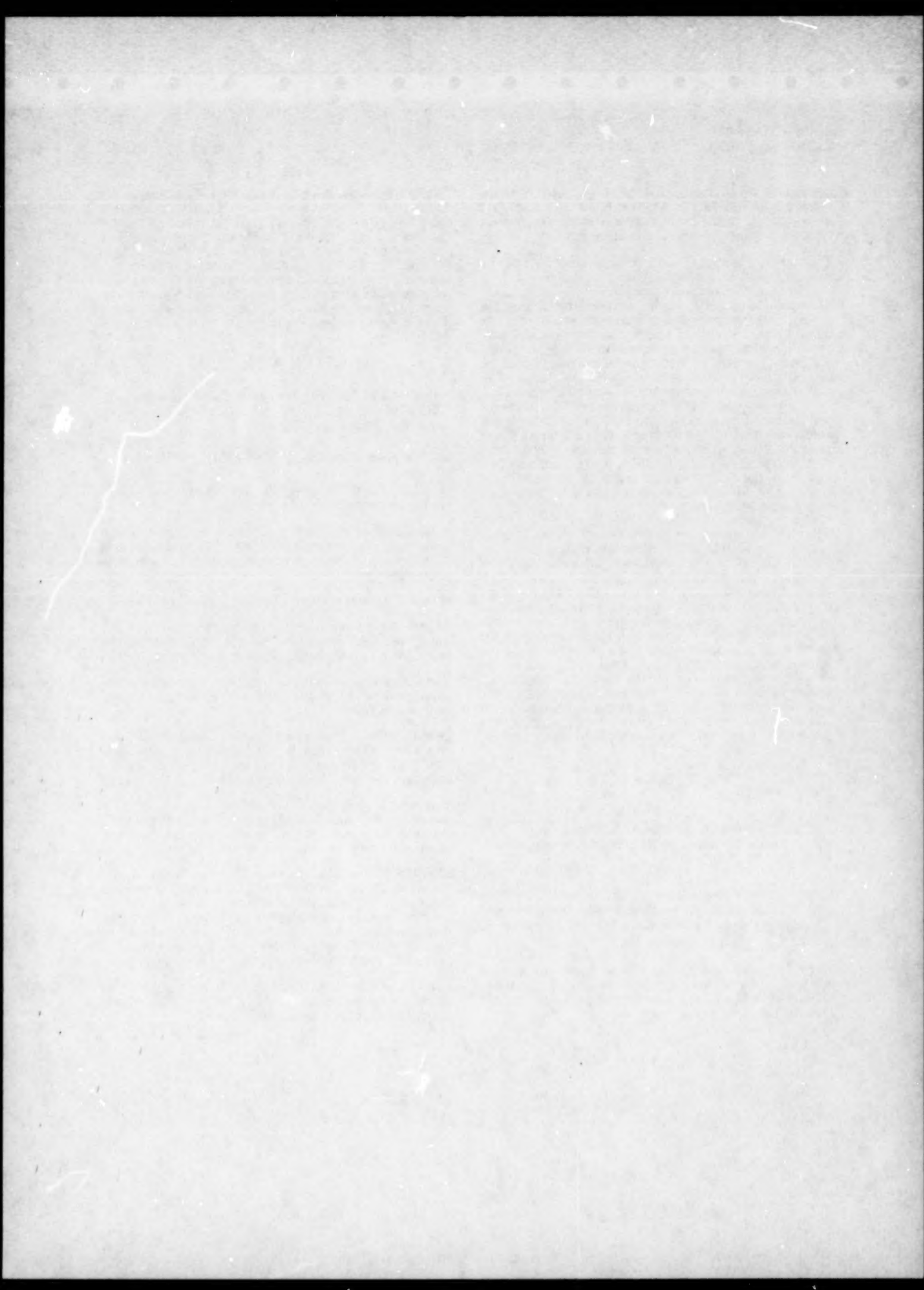
It remains under MOD [Ministry of Defense] control although other royal ordnance factories were privatised over two years ago.

Labour Defence Spokesman Martin O'Neill called for an immediate inquiry into the incident which occurred just after 6 am and demanded a full statement from Defence Secretary George Younger on Monday.

"The veil of secrecy which surrounds activities at establishments like Burghfield has to be lifted when the public and the surrounding area have been disturbed and shocked by an explosion such as this," he said.

Miss Joan Ruddock, Labour MP for Deptford and chairman of the Parliamentary Campaign for Nuclear Disarmament, said the explosion was a matter for extreme concern and added: "I will not be satisfied that there has been no dissemination of nuclear radioactive material into the atmosphere until the government is prepared to give a full report detailing what happened."

CND chairman Burce Kent said: "It is incredible that conventional explosives should be destroyed by burning in the middle of a nuclear bomb factory."



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